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THE TABULAR VIEW

MAGAZINES, if they are to perform their maximum service, must serve as clearing houses of information for their readers, even beyond the exchange of ideas afforded in their reading matter. Each month, for example, the delivery of The Review evokes from readers letters and other requests for more information or special information on subjects covered in the magazine. These inquiries are welcome, and every effort is made to respond to them fully. In this service, which we would like to see grow, we are aided by the great resources of the Institute: its staff, libraries, and laboratories. Let it be noted, then, that with the generous aid of these various agencies The Review stands ready to answer or have answered any reasonable query arising out of its editorial and advertising content.

ALTHOUGH this is his first formal appearance in print as a brain tester, RALPH G. HUDSON, '07, is the author of five technical books that might at various times have been classed as brain testers by lackadaisical students. He is professor of electrical engineering at the Institute and is in charge of the Courses in General Science and General Engineering. Readers will recall his article, "Science and the Fine Arts," published in these pages last May. ¶ "Seeing Solid" was started as a 500-word article for The Trend of Affairs; when finished, it had grown to 5,000 words and a dozen illustrations, as you may observe on page 191*ff*. On the one hand, this tenfold increase in length reflects the growth in enthusiasm of the authors as they dug into the subject. On the other hand, the greater length bears an inverse ratio to the material available on stereoscopy; as the authors discovered how little had been said about the stereoscope's growing importance, they felt justified in speaking at length. The collaborators are both members of The Review Staff. ¶ "The Educated Workman" (page 198) reached the Editor via the Institute of International Education under the auspices of which the author, KARL POLANYI, has traveled, lectured, and observed in the United States. Although now living in London as the foreign editor of *Der Osterreichische Volkswirt*, Dr. Polanyi is an Austrian citizen and a native of Vienna where he has achieved a wide reputation as a political scientist, author, lecturer, and editor. ¶ The Review's editorial associates are its eyes and ears; they occupy outposts, each in a special field, where they scan the horizon for the new, the interesting, and the important. With this issue we bring the number of these associates to a round half-dozen by the addition of FREDERICK G. FASSETT, JR., Assistant Professor of English at the Institute, able journalist, shrewd observer of the pageant of science. Already he has contributed many thousands of words to The Review and made himself an invaluable member of The Review family. ¶ The Review again issues a call to amateur photographers to submit prints for consideration by the Editors.

MAIL RETURNS

P. S. to a Comeback

FROM JAMES H. CARR, JR., '36:

I read with interest your article in the December issue of The Review entitled "Wooden Bridges Stage a Comeback." To what the author has said I should like to add my views on what I believe is one of the most important considerations in this new appreciation of timber for structural purposes.

Probably the greatest aid to the economical use of structural timbers and the main factor in the coming back not only of wooden bridges but also the building of structures previously thought of as being possible only in steel (*e. g.*, radio towers, ski jumps, wide-span warehouses, and many other large construction projects) is the development and use of modern timber connectors. By their use the full strength of the wooden members is utilized, whereas in former days the joints so limited allowable stresses that large pieces were necessitated to obtain safe joinings. Wooden structures have found their renaissance through these connectors and in less than four years over 9,000 structures have been built in the United States with connectors in one form or another.

It might also prove interesting to the readers to know of the very latest development in the connector field, which is the spiked grid. This connector is especially adaptable to wharves, piers, and trestle bents where the connection of round timbers is involved. These connectors are in several forms, but in all cases consist of square malleable iron castings with teeth on opposite sides. The most important forms are those with two flat sides for connecting two rectangular timbers together, those with one flat and one curved side for connecting a round timber to a rectangular timber, and those having two curved surfaces for use in connecting two round timbers. The railroads have shown much interest in this connector. One railroad has found the use of Teco grids in its piers has prevented shearing of one-inch bolts under heavy impact load.

Washington, D. C.

Behind the Scene

FROM W. T. WHITE:

On page 141 of the February issue of The Review there appears a short paragraph covering the new "quota-control" elevators recently installed in the International Building at Rockefeller Center. Perhaps you may be interested to know that all of these elevators, together with those in the main Tower — buildings number 6, 4A and B, the English and the French buildings — were installed by the Westinghouse Electric Elevator Company of Chicago, of which Frank C. Reed, '03, is president and Ross H. Rathbun, '12, is general sales manager.

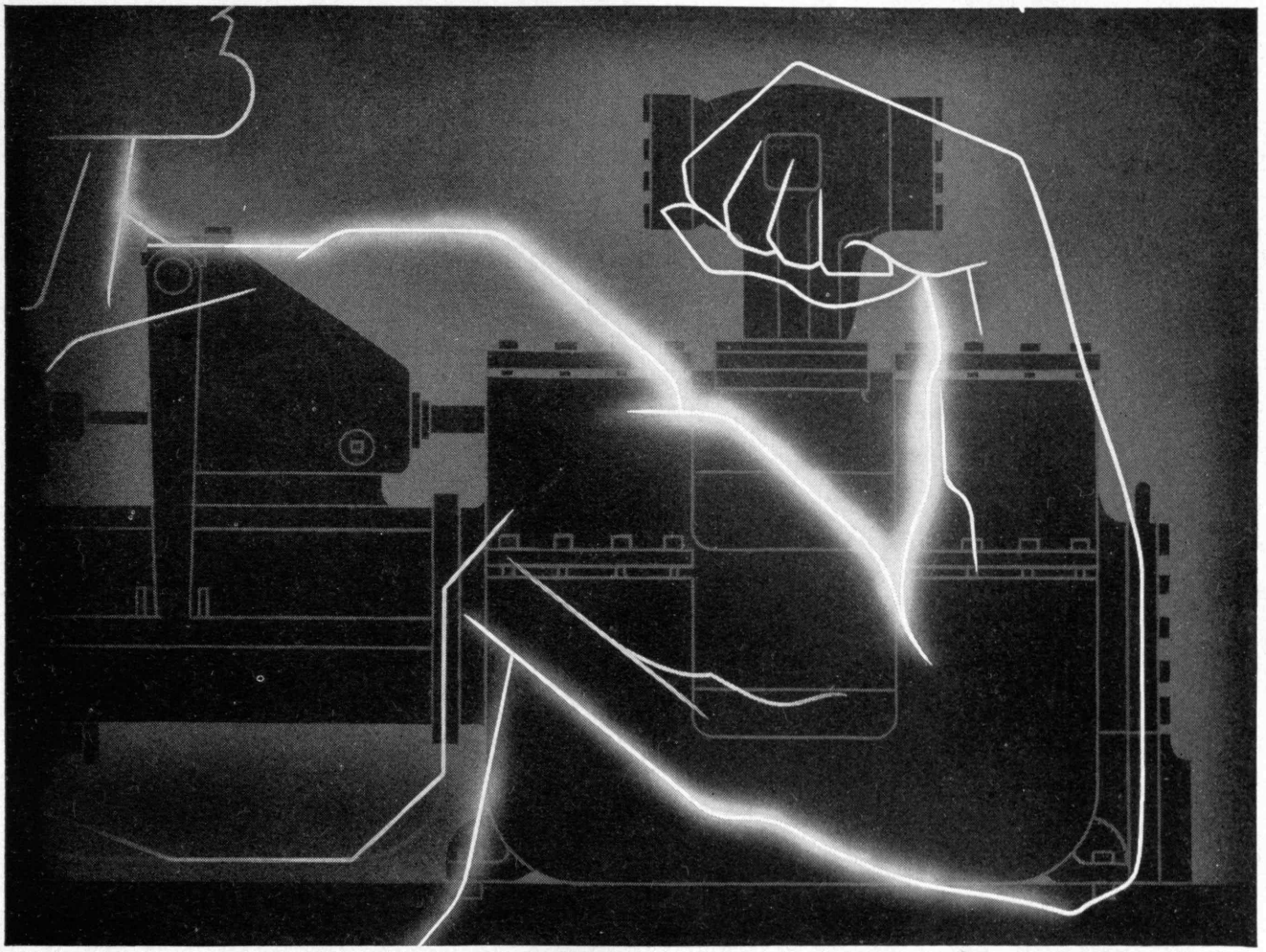
Chicago, Ill.

Lucid Observations on Education

Professor Tenney L. Davis' article in the December Review elicited the following observations:

FROM JOHN E. WOODS, '16:

. . . A consideration of the facts discloses a few points which are presented so logically in your recent article, "Toward a Liberal Education." The average student at the Institute enters after three or four years in high school or prep school, during which time he is really preparing his mind for an education. He is then immediately launched into a relatively rigorous curriculum in which he has (*Concluded on page 214*)



SINEWS FOR SERVICE

IF THE service is tough — so are Moly irons and steels. Take slush pumps in the oil fields . . . driven continuously and operating under severe conditions.

Since no pump is better than its parts, many pump builders use Moly irons and steels for the vital parts . . . because they have proved their capacity to withstand the toughest going.

One manufacturer, for example, uses carburized Nickel-Moly (SAE 4615) for pump cylinders. It was selected primarily because it takes a case impervious to the abrasion of well cuttings; and pressure is always constant. Minimum distortion from heat-treating was also a factor. . . . Just one of many cases where Moly steel or iron has settled a difficult problem — to the mutual advantage of the manufacturer and the user of the product. From either standpoint, Moly steels and irons will prove well worth their investigation.

Our technical books, "Molybdenum in Steel" and "Molybdenum in Cast Iron," will be found of unusual interest to engineering and production heads in any industry using or producing ferrous products. A simple request brings either or both — and, if desired, puts your name on "The Moly Matrix" monthly mailing list. Our experimental laboratory facilities are available for the study of any special problem in alloy steel or iron. Climax Molybdenum Company, 500 Fifth Avenue, New York City.

PRODUCERS OF FERRO-MOLYBDENUM, CALCIUM MOLYBDATE AND MOLYBDENUM TRIOXIDE

Climax Mo-lyb-den-um Company

MOLY

YOU WON'T BELIEVE US

UNTIL YOU USE THIS AMAZING NEW 5-R BELT!

NOTHING STOPS IT—Goodyear engineer "snowing" fine baby talcum powder on pulley side of Goodyear 5-R Belt in test on 100 h. p. dynamometer. Yet even under this abnormally slippery condition 5-R continued to pull a heavy load at slack tension—*proof of its remarkable grip!*

YOU are bound to be skeptical — for any description of the new Goodyear 5-R Belt's astounding *slack-tension* operation sounds too good to be true. Yet every one of the following facts has been proved by nearly two years' test service on hundreds of different industrial applications:

HIGHEST COEFFICIENT OF FRICTION — *the 5-R is treated with a new Goodyear-perfected non-rosinous rubber compound, completely impregnated* THROUGH *the fabric, that affords a tenacious pulley-grip unsurpassed by any other type of belt!*

PERMANENT FACE ADHESION—*a high ratio of tensions may be obtained temporarily by recourse to one of many impermanent surface compounds. 5-R is unique in that it offers a minimum ratio of tensions of 5 at 180° of contact—its surface friction is lasting. It is a compound that will not crumble, ball-up, chatter or slip.*

OPERATES AT 25% TO 50% LOWER TENSION—*because of its high coefficient of friction, 5-R pulls heaviest loads at surprisingly slack tensions; greatly lessening strain on both belt and fasteners, and greatly increasing belt life.*

REDUCES BEARING PRESSURES 25% TO 50%—*because of lower operating tension, 5-R increases bearing life, lessens lubrication problems, lowers frictional losses and cuts power costs.*

APPLICABLE TO ANY DRIVE — *5-R is a square-edged flat belt, made in roll lots in all sizes and widths; easily applied with any standard fastener.*

Let the GTM show you

The G.T.M.—Goodyear Technical Man—will gladly explain 5-R's unequaled efficiency and economy. To bring this friendly consultant to your plant, write Goodyear, Akron, O., or Los Angeles, Calif. — or the nearest Goodyear Mechanical Rubber Goods Distributor.

BELTS
MOLDED GOODS
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PACKING
Made by the makers of Goodyear Tires

THE GREATEST NAME IN RUBBER

GOODYEAR

F. S. Lincoln, '22

THE TECHNOLOGY REVIEW

Title Reg. U. S. Pat. Office

EDITED AT THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

VOL. 39, NO. 5 CONTENTS MARCH, 1937

THE COVER

From a photograph by Young and Phelps

PUBLISHED MONTHLY FROM NOVEMBER TO JULY INCLUSIVE ON THE TWENTY-SEVENTH OF THE MONTH PRECEDING THE DATE OF ISSUE AT 50 CENTS A COPY. ANNUAL SUBSCRIPTION $3.50; CANADIAN AND FOREIGN SUBSCRIPTION $4.00. PUBLISHED FOR THE ALUMNI ASSOCIATION OF THE M.I.T. DONALD G. ROBBINS, PRESIDENT; C. A. SAWYER, JR., H. B. RICHMOND, VICE-PRESIDENTS; CHARLES E. LOCKE, SECRETARY; J. RHYNE KILLIAN, JR., TREASURER. PUBLISHED AT THE RUMFORD PRESS, 10 FERRY STREET, CONCORD, N. H. EDITORIAL OFFICE, ROOM 11-203, MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE A, MASS. ENTERED AS SECOND-CLASS MAIL MATTER AT THE POST OFFICE AT CONCORD, N. H. COPYRIGHT, 1937, BY THE ALUMNI ASSOCIATION OF THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY. THREE WEEKS MUST BE ALLOWED TO EFFECT CHANGES OF ADDRESS. BOTH OLD AND NEW ADDRESSES SHOULD BE GIVEN.

The stereoscope, as reported on page 191ff, has become an indispensable tool of science, an ingeniously adapted aid to visual understanding, and an instrument of pleasure with ever-widening possibilities.

The Technology Review is designed to be an editorial stereoscope for presenting Science's new world picture in the startling clarity of relief. It goes beyond the mere reporting of science and engineering news *in plano;* it adds the third dimension of *interpretation.*

Readers who seek a more realistic picture of the techniques, the products, and the new ways of living and thinking nurtured in laboratories, readers who desire the roundness, solidity, and depth of the stereoscopic view — it is for such modern-minded readers that The Review selects or prepares its interpretive articles.

It is for such readers that The Review presents each month a *salon* of brilliant photographs with an able supporting cast of three-dimension captions. In these illustrations readers find both interpretation and beauty, the unexpected, otherwise unseen beauty caught by cameras-in-the-laboratory and by engineer-inspired cameras on the mammoth dams and bridges and in the great industries of today and tomorrow.

THE TECHNOLOGY REVIEW

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THE
TECHNOLOGY
REVIEW

Vol. 39, No. 5 March, 1937

The Trend of Affairs

Surprising Casey Jones

AS far as the public is concerned, the entire field of railroading has for the past several years been enjoying a technical renaissance which makes recovery from its economic slough almost a certainty. There are the Diesel-electric streamliners, which will perform miracles on a pint of cheap oil. (The smoke of publicity surrounding these newcomers is backed by plenty of fire.) And there are these new streamline steam locomotives (see next page) whose sleek steel envelopes, designed presumably to maintain the supremacy of steam in railroad power, seem better fitted to fascinate naive passengers. Commonly overlooked, however, is the fact that underneath their tastefully decorated false fronts is the same boiler and engine which one might have supposed the renaissance had shouldered into limbo.

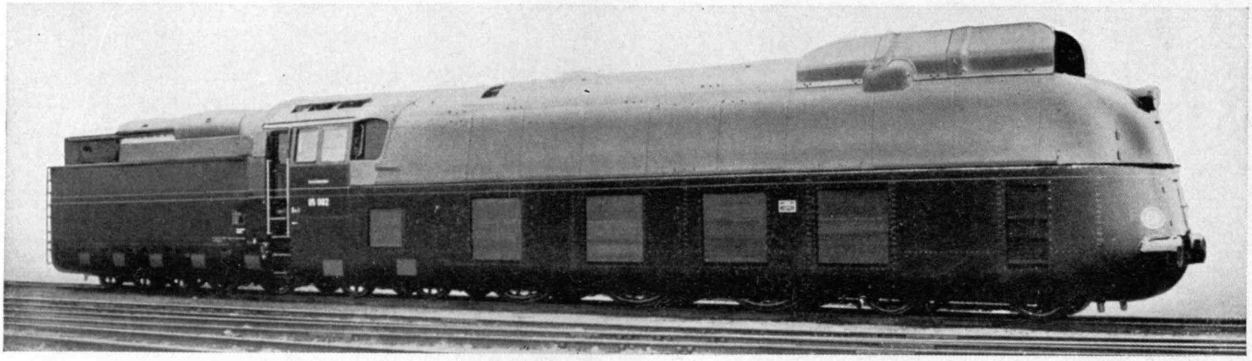
Ever since the time, more than a century ago, when it became less expensive to operate than a horse, the steam locomotive pursued its career without serious competition and, consequently, without much improvement in performance. Furthermore, its engineering, for the greater part of its history, has been dictated by "practical" men, so that it is, like its centenarian contemporaries — the textile mill and the steamship — basically empirical in design. The result is a standardized, highly dependable engine, which, in its latest and most efficient forms, has few features aside from size which would startle Casey Jones and an overall efficiency of not more than nine per cent. By contrast the best central steam power stations will convert about 30% of the heat energy in the fuel into useful work.

Compared with the not uncommon pressures of 1,400 pounds per square inch, temperatures of 900 degrees F., and fluid-boiler design encountered in stationary plants, the railroads, with a decade of chronic depression behind them and an unlimited prospect of good times ahead, still cling to the fire-tube boiler and maintain the upper limit of accepted practice at 300 pounds per square inch. (It is only fair to record, however, that water-tube boilers of high pressures have been tried experimentally and that increase of working pressures in this type of engine has been hampered by legal limitations.) During the past 20 years, improvements in thermal efficiency have resulted mainly from higher superheating temperatures and better use of waste heat, with few attempts at more radical changes.

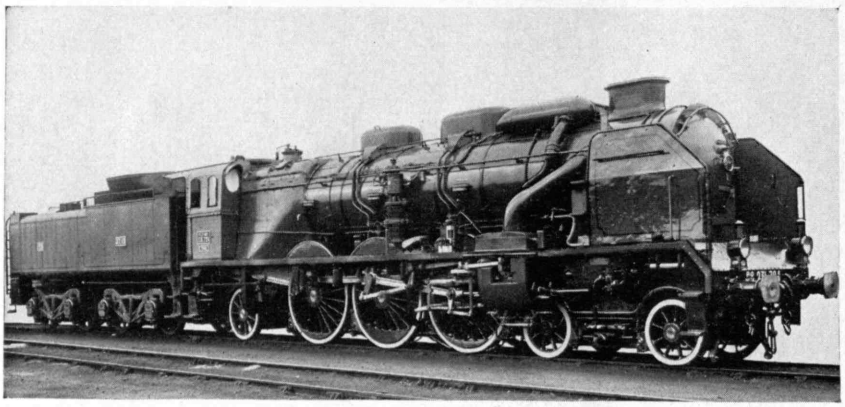
The net effect has been to lower fuel consumption until it now takes 15 pounds of coal on the average to pull a passenger car one mile, while in 1922, 18 pounds were required for the same task. But — the *Comet*, a New Haven owned Diesel-electric unit carrying 160 passengers, travels 1.6 miles on one gallon of fuel. And — fuel for locomotives accounts for over one-quarter of railroad operating costs.

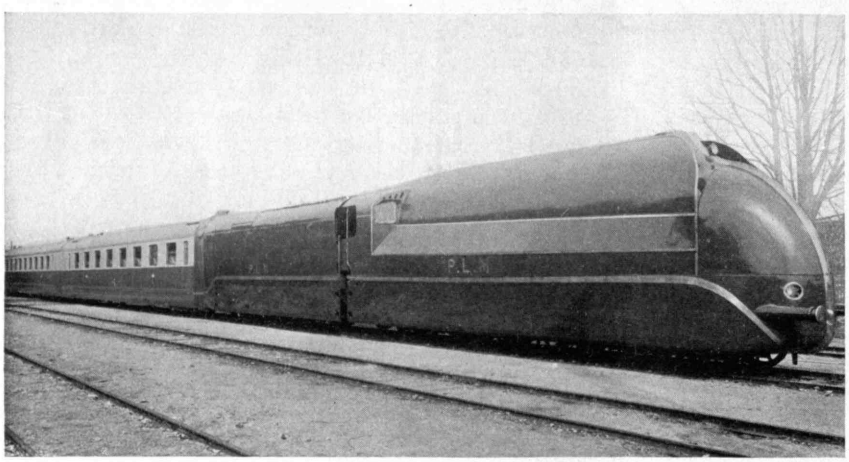
Although it is possible, even probable, that worried locomotive builders may reach efficiencies of 15% by progress along present lines, the process may be so slow that the patient will become a chronic invalid before the disease is overcome. Recourse to organized research may lead to faster progress. One promising result of this technique, joint product of the Union Pacific and General Electric, is a steam locomotive that is different. Of near record size, its two 2,500 horse-power units will pull a load of 1,000 tons at 110 miles an hour when operated in synchronism.

More significant than these statistics is the fact that this prime mover will be the first steam turbine-electric locomotive to ride American rails. Not that the turbine locomotive is new: Because of its efficient, reliable performance in stationary and marine plants, railroad engineers have been attracted to the turbine time and



Baldwin Locomotives





ON FOREIGN RAILS

With its hat pulled low over its forehead and its skirts tucked in under its knees, the German locomotive above, built by Borsig, is of a type which holds the world's record for steam; it can lap up distance at the rate of 119.2 miles an hour, drawing a train of 200 tons.

France offers contrasts such as the two steam locomotives on the left. The upper, a Pacific type which runs on the Paris Orleans Railway, with wind-swept wheels and its veins seeming to stand out from exertion, has been known to exceed 93.2 miles an hour when hauling a train of 400 tons, and it regularly draws the South Express between Tours and Bordeaux at 66.4 miles an hour. The lower, svelte model, of the Paris, Lyons, Mediterranean Railway runs 97.5 miles an hour when pulling 200 tons on the Paris-Dijon trip

time again, only to be repelled by the difficulty in adapting it to the savagely severe conditions encountered in railroad practice. Yet the promises held out by the turbine have been so bright that dozens of experimental units have been constructed in Europe since the first attempt by the Italian Belluzzo in 1907.

Beckoning the designer of condensing turbine locomotives, particularly for high-speed passenger service, is, first, a fuel consumption less than half that of the piston unit; second, lower maintenance costs for engine and roadbed; third, elimination of the unbalanced forces which are serious in reciprocating engines operated at the higher speeds toward which railroads are moving. To transmit thousands of horse power from whirling rotors to stationary track requires, however, costly, complicated design. Turbines are also nonreversing. Electric drive, instead of mechanical, of course eliminates this problem, as it does that of the turbine's low starting torque.

Past experience has shown, however, that the condenser is or, let us hope, was the greatest weakness. Prime element in lowering fuel consumption, it was, in previous designs, bulky, expensive, varying with the weather in its action, and unreliable. The latest European designs have shown, by a trend to noncondensing units, that engineers consider its disadvantages to outweigh any savings in fuel.

The Union Pacific locomotive, soon promised for delivery, is, nevertheless, a condensing unit, allowing the use of distilled water and the elimination of many boiler troubles. It is reported that the new boiler will look much like the usual streamline design, but there

the resemblance ends; under the smooth shell is an automatically controlled, fusion-welded, water-tube steam generator which will deliver steam to the turbines at 1,500 pounds per square inch and 950 degrees F.

This steam generator is of interest in its own right. The result of development work by three noted manufacturers of power equipment — Babcock and Wilcox, the Bailey Meter Company, and General Electric — the "Steamotive" unit, as it is known, is intended to produce high-pressure, high-temperature steam under the severe conditions encountered in mobile equipment and certain industrial applications. Most remarkable characteristic to a reincarnated Casey Jones would be, however, its ability to go into service in about eight minutes after a completely cold start.

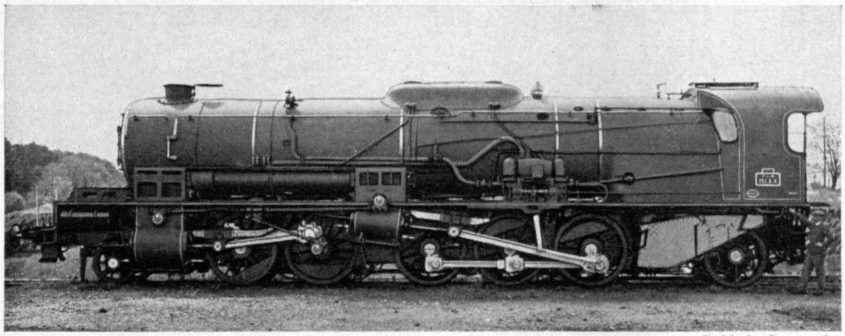
In spite of electric equipment and condenser, the new locomotive is approximately 20% lighter than the conventional steam locomotive and lighter even than the Union Pacific Diesel-electric trains. More important is the possibility that it can be built much more cheaply than its oil-engine competitor. With an operating cost at high speeds which at least approaches the Diesel's, this turboelectric locomotive may be the means of continuing steam's dominance of railroad power.

Note for Anglophobes

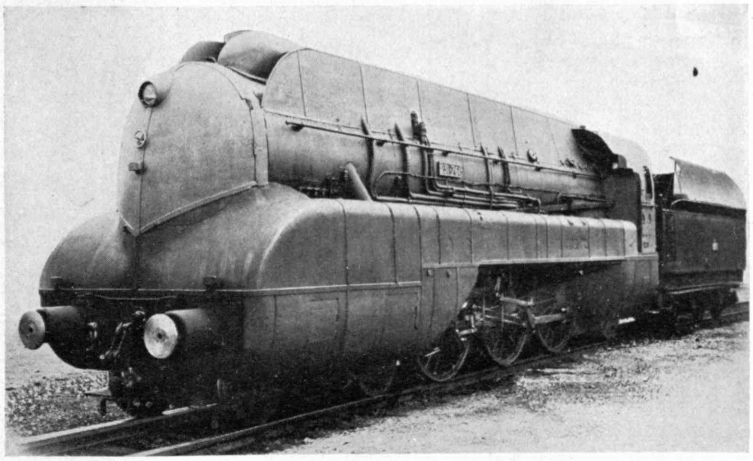
ISOLATIONISTS find something cosmically inappropriate in the apparent fact that on July 4 London is nearer to Washington than it is on January 1. To make matters worse, astronomers have been unable, so far, to do anything about it or even to provide an adequate explanation. The grim truth remains that observations lately made over a three-year period indicated that on Independence Day, as contrasted to the turn of the year, London manages to be, on the average, nearer to Washington by 39 feet.

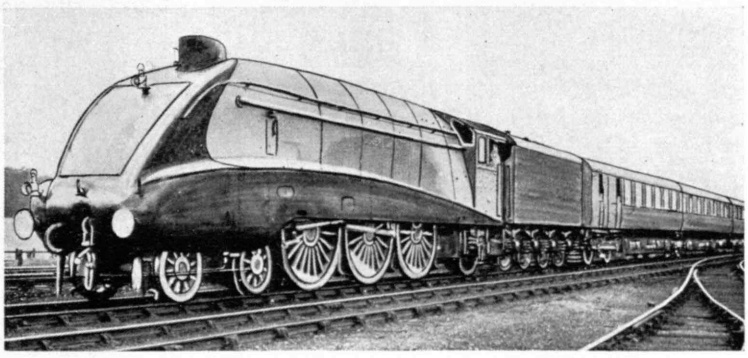
Contrary to reports, the moon, and not international bankers, has been charged with the responsibility for this pretty piece of continental manipulation. To complicate the matter more, evidence is now produced tending to implicate the sun too, even though it is some four million miles farther from the earth in July than it is in January and therefore ought to have an alibi.

We venture no explanation beyond that of the astronomers; we merely make a note to pop a firecracker next New Year's.



Baldwin Locomotives





EUROPEAN STYLES, CONT.

Probably the most powerful locomotive of its kind in Europe (above) *this sumpter of the rail, compact, stocky, more traditional in form, can develop 3,000 horse power at 46.6 miles an hour. This engine hauls freight on the Paris, Lyons, Mediterranean Railway.*

The two locomotives on the right show varying degrees of streamlining. Engineers of each country have their own ideas as to practical relationships between curve of form and speed of motion. The French State Railways (upper) *have clothed their steed in armor resembling the breastplate of a medieval knight. The Silver Jubilee train* (lower) *on the London and North Eastern Railway presents a broadly curved face to the wind while it covers the 268 miles between London and Newcastle in four hours*

Vermont Marble Company

CAVERN OF MARBLE

Hollywood could hardly design a set more weird in its appearance than this tunnel marble quarry at West Rutland, Vt. Marble provides an example, as described below, of how a traditional material, when studied in the laboratory, can be adapted to new uses

Parable in Marble

COMMONLY leveled at the building industry is the criticism that it is backward not only in its methods but in its efforts to improve them. Whether or not this dictum is broadly valid, the fact is that here and there units of this industry display remarkable vitality in their research.

Materials manufacturers may boast no houses of magic, their contributions to the advancement of an old art may be leisurely and unspectacular, but, nonetheless, research—interesting research at that—is being carried on in many an unsuspected nook.

Of special interest in building-materials research is that phase which deals with old materials. The maker of a synthesized product usually enjoys a large field for his playground; the stops on his research organ are many, and his embarrassment, if any he has, lies in the multiplicity of the combinations he may essay rather than in their paucity. With a new material he suffers no limitations from past knowledge and his imagination, thus able to soar more freely, is perhaps more like to come to rest on new ground.

The tiller of old fields, on the other hand, and particularly the entrepreneur who is engaged in extracting and marketing old products of nature in something akin to their primary form, has, on the face of things, less room in which to turn around, fewer things that he may try, and at every turn is like to be confronted with the wall of stern and established fact or apparent fact. Hence it is always refreshing to tell the story of such an entrepreneur who has realized that all the facts may not be facts, or that even if they be, they may be subject to new interpretation.

The Review has frequently commented on the new vitality that seems to have been infused into the lumber industry; it now takes pleasure in calling attention to a similar development in one of man's oldest materials: stone.

Proctor, Vt., is headquarters for the Vermont Marble Company, an organization which draws marble not only from the hills of the Green Mountains of Vermont but from Colorado, Alaska, and Montana. Long skilled in the art of extracting, cutting, and polishing one of nature's most beautiful stones, a leader in its field, this organization has for a number of years prosecuted consistent research in widely varying fields. It has accepted the challenge to research suggested by the fact that the physical and chemical make-up of marble can, in a practical sense, apparently be changed and rearranged only to a limited degree, without the same opportunity for the development of products and by-products found in such other fields of natural resource as wood, coal, or oil. Steadily, of course, and perhaps obviously, the company has done work in production research involving problems of manufacturing, shipping, and installation; in maintenance research involving problems in cleaning, waterproofing, weatherproofing, and the relation of the stone to various cements and metals; in competition research involving close study of both natural and synthetic materials of a competitive nature. All of these yield fruits of definite value to the Vermont Marble Company and often to the building industry as well. But individual results are likely to have no serious implications for the commentator.

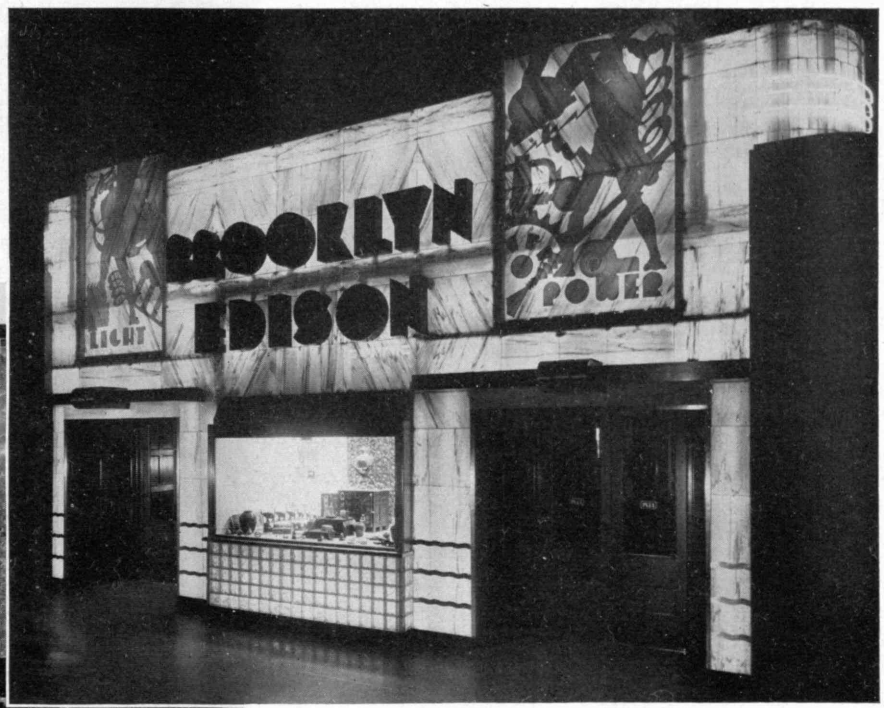
More significant to an observer is the amount of fundamental research carried on by the company in geology, petrology, and studies of crystalline structure.

The company has learned, for example, that those marbles which prove durable for exterior use have an interlocking crystal structure, that the crystals may be of different sizes in different deposits, and that some marbles show definite orientation of the crystal axes. Since the weathering of each calcite crystal depends to a certain extent upon which crystal face or plane is exposed, the problem of weathering of a marble surface is intimately connected with the orientation of the crystals making up the surface layer. This may be a guide to cutting so as to improve weathering characteristics.

Again, microscopic and physical study, before and after finishing, demonstrates the varying effects of different fabrication processes. One important question not yet answered is whether or not there is a flow of solid material during finishing. Here, too, the direction of orientation of the crystals is of significance. For example, the planes of easiest slide or glide within the crystals may be intimately involved in polishing any surface. Finally, marble has perhaps more uniform and narrower openings between the crystals than has any other commercially used stone. To study the interfacial tensions of solutions in these extremely narrow openings is important. The results of such study have served as guides in endeavoring to explain and control the movement of moisture through stone. Evidently all work of this kind has implications for other parts of the building industry and in some instances the implications may be exceedingly broad.

Basic research has yielded at least three relatively new products for Vermont Marble. Youngest of the babies is "Markwa," which is marble in tile form, one-half inch thick, cut to standard sizes, and grooved on the back. This is the first time such a product has ever been offered to the public and it has been made possible by the development of special equipment to reduce the cost of thin cutting. Inasmuch as the delicacy of coloring and marking, the inimitable beauty and depth of a natural material, the sparkle and life of a crystal surface, and the vagrant, yet consistent patterns of nature are all present in such tiles, they seem to promise stern competition with the previously accepted products for the same use.

Fundamental research in crystalline structure and in the light-transmitting properties of calcite crystals is responsible for another of Vermont Marble's products which has previously been noticed in The Review (see May, 1936, page 338). In seeking for a highly translucent stone—the stone finally found and called by its makers, "Lumar"—the marble scientists had to keep three things in mind: They wished a high diffusion of light rays, a high degree of transmission, and a display of sparkle by the constituent crystals. A high degree of diffusion they found might be obtained by selecting marbles whose calcite grains were separated by very thin air films of the order of 2.5 to 5.0 millimicrons. Such thin films would cause reflection of the light ray in calcite back into the grain when the angle of incidence exceeded the critical angle. Since the critical angle for the ordinary ray is 37 degrees and for the extraordinary ray about



MARKWA (left) LUMAR (above)

New Names for New Uses

A marble bathroom in your home? It is now possible at a reasonable cost by the use of Markwa tile. Translucent marble? Lumar is, and may be used to achieve such striking effects as the store front above. For more description as well as a moral, politely pointed out, see adjacent text

42 degrees, a very considerable number of rays will undergo frequent internal reflections in a variety of directions determined only by the grain form, with the resultant desired diffusion.

Similarly, light-transmitting power was found to be a function of the width of space between the grains, of the type of coloring matter in the stone, and of the type of orientation of the vertical axes of the calcite grains. By stock selection and by treatment in sawing so that the maximum concentration of the vertical axes of the calcite lay in the plane of the slab, it was possible materially to increase light transmission.

Finally, sparkle is due to the numerous reflections of light at grain contacts. Again the thickness of the separating air film was of consequence. As a result of this close study of marble structure it was possible to develop the necessary technique for the selection and cutting of this interesting new translucent material.

A third product, "Jetmar," is more mysterious. Black marbles have not been common in this country, though they are at times in great demand and have been imported from Belgium. Through a secret process of interfusion developed by Vermont research fellows, genuine marble is transformed in color to a jet black. The marble is real enough and seems to have many desirable properties.

Quietly in this way throughout the land many a building-materials manufacturer pushes his research. More and more these makers of apparently simple products come to realize that their problems are not simple and that only fundamental research will serve their best interests.

Unfortunately for that humanity which has to use the products of the building industry, there is still little evidence of any similar interest in fundamentals on the part of those who put the materials together into buildings, nor enough interest on the part of the manufacturers. We still must cope with leaky flashings made of high-grade copper, with poor masonry walls in which both mortar and stone are apparently of the first class. It is only in small part the duty of the contractor for the stone or for the mortar to solve the problem of the poor wall; he will do so only if force of competition of other types of wall drives him to it. As Albert Mayer has remarked in his very able article on Greenbrook: "A comprehensive study by a qualified group . . . should be made of the whole subject. . . . The state of knowledge in the whole field is chaotic, both as to the existence of an authoritative set of criteria and as to the manner in which much-propagandized materials and systems offered meet such criteria. Such a study, once made, should be periodically brought up to date." — To which, amen!

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2

PROTECTIVE

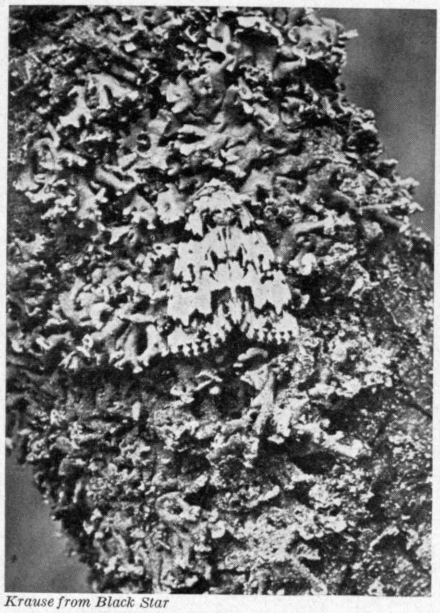
The raspberry inchworm (1), *at rest on a raspberry bush, evades his enemies by his twiglike appearance. When Kipling wrote: ". . . With little wavy grey lines on their backs like bark on a tree trunk . . . they had a beautiful time in the 'sclusively speckly-spickly shadows of the forest," he might have been describing the pine hawk moth* (2) *and the diptera*

Tonus

FOR weeks, even for months, the unborn child in the mother's womb makes distinct rhythmic respiratory movements, but these movements are not breathing, in that they do not expand the lungs and keep them expanded. If a fetal lamb is delivered by Caesarean section without disturbance of the placental circulation and is kept in a bath of warm saline solution resembling its normal fetal environment, the respiratory movements continue, but they still are not breathing. The baby unborn and the fetal lamb maintained in conditions closely paralleling those before birth are both freed of the necessity of breathing. Once birth has occurred, however, if the creature is to survive, breathing must and does commence. What makes this difference?

Professor Yandell Henderson of the laboratory of applied physiology at Yale answers, in a paper read before the Connecticut Academy of Arts and Sciences, that a function deficient in the fetus is quickly developed at birth and then continuously maintained through life. Of critical importance for respiration, circulation, and metabolism, this function is that of muscle tonus — a condition of mild steady activity characteristic of normal protoplasm.

The relation of tonus to respiration appears from observations made by Henderson years ago on the loss of tonus at death. Investigating forms of manual artificial respiration, he found that only so long as tonus continues are the thoracic muscles and diaphragm sufficiently elastic to keep the lungs well expanded, and that only so long as the lungs are thus fairly well expanded is manual artificial respiration effective. The muscles lose their tonus within five or ten minutes after death; the lungs then become deflated and, even if inflated with a bellows, deflate again when the inflation



Krause from Black Star

3

4

COLORATION

alpium (3). *Notice that the broom measuring worm* (4) *and the caterpillar* (1) *are not only colored and shaped to resemble their habitats, but they seem to hold themselves at the proper angle of inclination to simulate the natural growth of the bush. Nature is still more skillful than man in the arts of camouflage*

ends. While tonus lasts, however, pressure upon the chest, abdomen, or back drives air out of the lungs. Subsequent inspiration is produced wholly by the tonic elasticity of the muscles which pull the chest back to midexpansion. After tonus is gone, no form of manipulation can produce the slightest inspiration.

The inflation which normally exists in living lungs is a function, Professor Henderson holds, of the tonus maintained in the respiratory muscles. "From birth to death the lungs are never deflated, because the diaphragm is never completely relaxed."

At birth, tonus is induced in the muscles by the coming into action of the motor centers of the spinal cord. The relation of these centers to the presence of tonus is demonstrated by the fact that if spinal anesthesia reaches the motor neurones, a depression of tonus results, which produces in the body a diminution of respiratory metabolism, stagnation of the blood in the tissues, failure of the venous return to the heart, and relaxation of the respiratory muscles producing partial deflation of the lungs. The extreme form of this state, which may follow serious physical injuries and major surgical operations, is termed shock.

This activation of the motor centers of the spinal cord, then, as it produces the tonus essential to respiration — and to metabolism and circulation as well — appears to be the starting mechanism of normal life. Muscle tonus appears to be the condition which, resulting from that starting mechanism, means the continuance of normal life.

Without Appraisal

AS we reach this point in this section of news and interpretation, we find so many plain and fancy items still remaining in the editorial grab bag that we are forced merely to list them without benefit of appraisal except that which comes from selecting what is interesting or promising. For readers, then, who revel in lazy Susan service, we present Notes of the Month:

THE METAL BLOTTER. It looks and feels like ordinary metal, yet it will blot a drop of ink like a blotter. When one end of a strip of it is placed in kerosene, the other end will feed a flame, exactly as a cotton lamp wick. General Electric makes it by subjecting a metallic powder to pressure of several thousand pounds per square inch and then heating it briefly in a furnace. The result is a light metal, full of microscopic cracks and crannies, and, therefore, porous.

A NEW ANTISEPTIC. Only near the north coast of New South Wales does it grow, but in far-away London physicians are talking about the ti tree. It yields, it seems, an oil, lemon colored and of nutmeg odor, that apparently kills germs without irritating human tissue. Tested by the standard method, reports Science Service, ti-tree oil was from 11 to 13 times as effective as carbolic acid in killing typhoid bacteria, yet the acid is poisonous and ti-tree oil is not. Claims have been made that it also promotes healing, that it can be used with success in treating skin diseases, septic wounds, pyorrhea. Should these reports be verified, we may any minute expect ti-tree gargles, mouthwashes, tooth pastes, and hair tonics; but New South Wales is far away and the A.M.A. has not yet spoken.

AN ACCURATE DIAL THERMOMETER. The alloy, Invar (invariable), is practically unaffected by changes in temperature. By bonding Invar with an alloy of opposite quality (high expansion) to make a bimetal strip and by winding this strip into two or more concentric helices, engineers of the Western Electric Instrument Corporation have devised a deal-and-pointer thermometer of exceptional accuracy. The bimetal coils are sufficiently rigid to support a pointer without a bearing and sufficiently compact and cheap to make possible neat home thermometers for indoors and out.

IKE. The television camera that picks up an image for transmission is known as an iconoscope but only in formal scientific papers. Elsewhere it is Ike, and in television it plays an analogous part to the Mike of ordinary broadcasting. Ike and Mike it shall be.

VANILLA FROM WOOD. In Canada a company has been formed for the manufacture of fragrant vanillin from forbidding sulphite liquor, by-product of paper manufacturing.

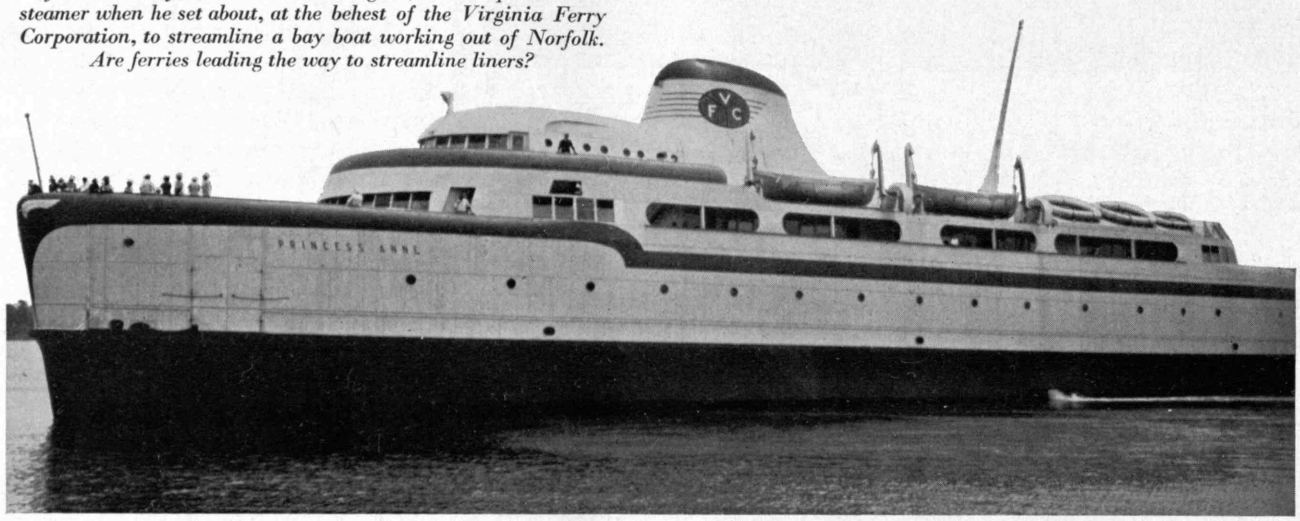
HEAT-INDICATING PAINT. For heat testing and heat warning an American firm has developed a series of paints that have the property of changing color when they are raised beyond a specified temperature. One

series of paints will change color permanently; another series, the retroactive ones, will return to their original color 25 to 50 times when the temperature is lowered. These paints can be used on processing equipment and power machinery transmissions to indicate, automatically, serious rises in temperature.

PERILLA. This year 150,000,000 pounds will be imported from Japan where it is produced from the seeds of a plant of the mint family closely related to the *Coleus* of American gardens. It is an oil that produces a quick-drying, quick-bodying action in paints; it is of value in making soya-bean oil useful for paints, varnishes, and linoleum, adding the above mentioned qualities to the cheapness and long-lived flexibility of soya oil.

FERRY FAIRED

Raymond Loewy, the industrial designer, ended up with this steamer when he set about, at the behest of the Virginia Ferry Corporation, to streamline a bay boat working out of Norfolk. Are ferries leading the way to streamline liners?



PHOTOSCULPTURE. Stereoscopic principles (see page 191*ff*) have been utilized by an English inventor to construct a photographic machine which forms solid models of objects exposed before the lenses.

Much Is In a Name

WHEN, about three centuries ago, Van Helmont coined the word *gas* to name the vapor which cold supposedly produced from water, he was unwittingly giving impetus to the manufacture of a by-product of science which has since become of great extent and of great concern to philologists. This manufacture is the constant addition of words to the language, a process whose scope may be judged at a glance by reference to the lists of new words in an unabridged dictionary or by speculating for a moment on the number of nouns, verbs, and adjectives which we use daily but which we could not have used before the invention and popularization, say, of the automobile, the airplane, or the radio. Invention of the word *kodak* by the late George Eastman is a familiar example of the process put to work by a keen mind.

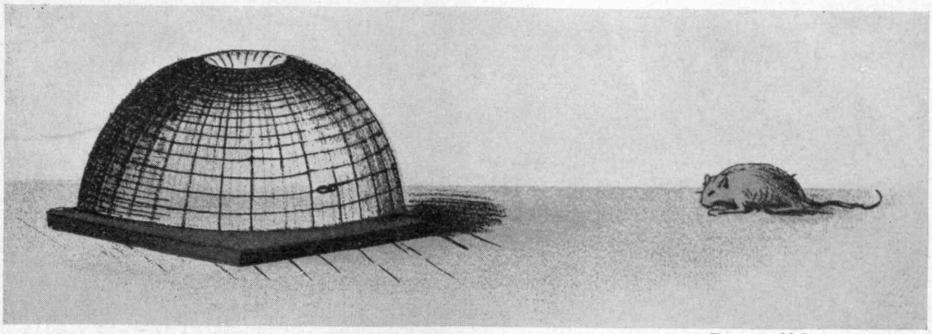
The necessity of these coinages is an obvious and a growing one. Professor Parry Moon, '27, of the Department of Electrical Engineering at Technology, who is fathering a flock of new terms under the sponsorship of the committee on nomenclature and standards of the Illuminating Engineering Society, points out that the common practice of using words already in the language to name scientific concepts gives for each such name a precise scientific meaning in addition to its one or more vague popular meanings, with no necessary connection between the scientific and the popular significations of the word. As a result, there is the constant danger of falsely identifying the popular concept with the scientific concept of the same name. The varied meanings of the word *brightness* offer ready illustration of this trouble.

Convinced that the only safe way of providing names for the concepts involved in illuminating engineering is to coin a new name for each new concept, Professor Moon has set up a group of specific new terms. Some of these have been arrived at by condensation of already used word groups, the elimination of syllables producing the new word. Others have been constructed by the addition of suitable endings to Greek roots. The list includes:

Radiometric Concepts	*Photometric Concepts*
Radiant energy	Lumergy (quantity of light)
Radiant power	Lumiflux (luminous flux)
Irradiance	Illuminance (illumination)
Heliance (radiant emittance)	Selance (luminous emittance)
Radicity (radiant intensity)	Lumicity (luminous intensity)
Radicitance (radiance)	Lumicitance (brightness)

Just how these new words differ from those they replace may be judged by comparing the old *brightness* with its dozen meanings to the new *lumicitance*, whose meaning is expressed by the equation: $B = \frac{dI}{dA \cos \theta}$

In time, of course, poets, essayists, advertising copy writers, and others will seize some of these words and will make them take on as many special meanings as they have *gas* and *taxi*, but for a while at least these terms will sharpen the scientific vocabulary in the manner needed.



From an old German stereogram

THE MOUSE MARCHES

. . . into the trap when this picture is viewed through the stereoscope, and if, while viewing, the eyes are opened and shut alternately, the mouse will march in and out. You may observe the same effect of convergence and movement by drawing a circle with a dot about two inches to the right or left of it. Through the stereoscope the dot appears within the circle. As explained on the next page, some people can observe this effect, as well as perceive depth, without the aid of a stereoscope

Seeing Solid

The Third Dimension at Work and Play

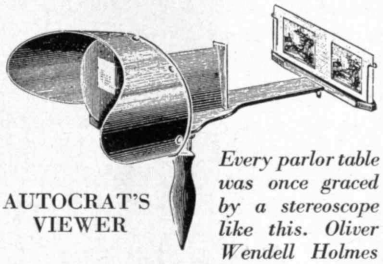
By John J. Rowlands and J. Rhyne Killian, jr.

"We have now obtained the double-eyed or twin pictures, or Stereograph, if we may coin a name. But the pictures are two, and we want to slide them into each other, so to speak, as in natural vision, that we may see them as one. . . .

"We can do this in two ways. First, by *squinting* as we look at them. But this is tedious, painful, and to some impossible, or at least very difficult. We shall find it much easier to look through a couple of glasses that *squint for us*. . . . This is a *squinting magnifier*. . . ."

— Oliver Wendell Holmes

THE Autocrat of the Breakfast Table, who wrote the above in the June, 1859, *Atlantic Monthly*, was one of the first stereoscope fans. After examining a hundred thousand stereographs then available (a remarkable number, considering that photography was only a few years old) and selecting a thousand for use in a viewer of his own design, he proved himself to be, in addition to an ardent fan, the stereoscope's most articulate rhapsodist. "This is no toy," he insisted in a second article, chiefly a stereoscopic travelogue, in the *Atlantic*, "it is no toy: it is a divine gift, placed in our hands nominally by science, really by that inspiration which is revealing the Almighty through the lips of the humble students of Nature."



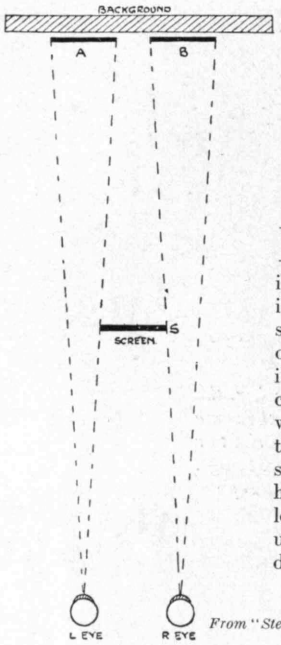
AUTOCRAT'S VIEWER

Every parlor table was once graced by a stereoscope like this. Oliver Wendell Holmes designed it, and if you have one, you will enjoy using it to view the illustrations in this article

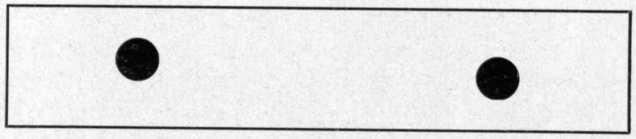
Holmes's enthusiasm was founded on an appreciation of the enormous potentialities of the stereoscope; the public's enthusiasm that followed his popularization was not. The "squinting magnifier" became a toy, a fad, that swept the world; on every parlor table it was the inevitable companion to the heavy-lidded family album. To an untraveled but travel-hungry public it presented with startling reality the wonders of the Victorian world: Vesuvius, Niagara Falls, the Sphinx, and native life in the South Sea Islands. And then, as red plush gave way to Grand Rapids mission oak, it suddenly disappeared; the public forgot it as quickly as it was later to forget mah-jongg. So completely did it disappear that when the American Army urgently needed stereoscopes during the World War it had to resort to an intensive search of dusty attics to find a few hundred.

But the story does not end here. Next year, when the 100th anniversary of Wheatstone's invention * of the stereoscope is marked, it will be possible to point to a remarkable renaissance. By that time there will be on the market — to note a few straws in the wind — a dozen textbooks stereographically illustrated, each copy supplied with its own stereoscope, designed to be clipped to the top of the book when in use and folded in a pocket on the cover when not in use. The twin-lens stereoscopic camera is reappearing in the hands of the amateur photographer, and he is proudly

* Sir Charles Wheatstone's claims to priority were bitterly contested by Sir David Brewster, who developed a stereoscope almost simultaneously with Wheatstone, but while the latter employed mirrors and reflected images, Brewster chose prisms. The first stereoscopes manufactured on a commercial scale were made by *M.* Duboscq, an eminent French optician, who patterned his instrument after that developed by Wheatstone. The stereoscope which later came into general favor, however, followed the design adopted by Brewster, and the type which eventually appeared in American homes was the one designed by Holmes.



From "Stereoscopic Photography" by Arthur W. Judge



METHODS OF SEEING SOLID

IF you haven't an old stereoscope in the attic, there are other entertaining methods of attaining the illusion of relief in the accompanying stereoscopic illustrations. Many people are able to see this effect by squinting or looking at the pictures cross-eyed, while others soon master the trick. One simple method is illustrated in the diagram at the left, in which a vertical black cardboard or paper screen, S, about an inch wide is moved back and forth between the eyes and the stereoscopic pictures, A and B. The effect of relief should be apparent after a few trials when the screen hides the picture, A, from the right eye and B from the left. The superimposing of one stereoscopic image upon another is strikingly demonstrated by the black dots above. Try it by fixing the eyes on some distant scene and, without changing focus, slowly move the page upward until the dots are in range of vision. The dots should then become a single image. Eventually with practice it may be possible to see solid by holding the flat side of a rule between the eyes and the stereoscopic pictures.

An interesting experiment demonstrating the fidelity of the stereoscopic image is to look simultaneously at a real landscape with the right eye and a stereoscopic view of it through the right side of a stereoscope with the left eye. With manipulation you can blend the two views and see how exactly the picture coincides with the true landscape. What the eyes see naturally is no larger than what the eyes usually see through a correctly used stereoscope.

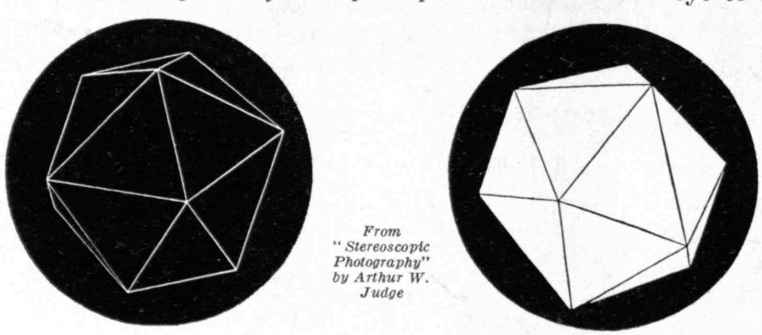
showing luminous transparencies in smartly designed and sharply resolving viewers. Whole countries are being mapped from the air by the application of stereoscopic principles; the teacher is using the stereoscope in the classroom, the doctor in the x-ray room, the optometrist for correcting vision. And in the laboratory many scientists, fascinated by stereoscopy's possibilities, are seeking ways of projecting three-dimensional pictures, even motion pictures, so that large audiences may view them, and are constantly finding new ways to put the third dimension to work. Before detailing some of these new methods of seeing solid, however, let us first describe some of the curious qualities of the stereoscope and of the human eye which it supplements.

THE stereoscope is a binocular optical instrument for viewing two slightly dissimilar photographs or drawings to produce a single image in three dimensions rather than two. In other words, it is an instrument which makes surfaces look solid, which gives the very convincing effect of roundness and depth and solidity produced in the brain through the eyes in natural vision.

The two dissimilar views which constitute the stereogram are analogous to the two views, a flat picture to each eye, which a person ordinarily sees without realizing it because of the blending by the brain of these flat pictures into one image of three dimensions. Doubting Thomases can prove by a simple experiment that the image each eye sees is flat. Have some one hold a pencil vertically in front of you and then with one eye closed try to hit the pencil with a pointed finger by a quick movement from the side; if you come within an inch of the target, you are better than average. Next, try it with both eyes open; if you fail to hit the pencil every time, consult an oculist. A man with only one eye gets no sensation of depth, although he may learn to determine depth by developing a judgment of shading, color, relative proportions, and perspective.

With both eyes functioning, therefore, we see different pictures of the same thing from points two or three inches apart. "By means of these two different views of an object," as Holmes vividly put it, "the mind, as it were, *feels around it* and gets an idea of its solidity. We clasp an object with our eyes, as with our arms . . . and then we know it to be something more than a surface. This, of course, is an illustration of a fact, rather than an explanation of its mechanism." Even today there is no adequate explanation of this amazing phenomenon of binocular vision, the ability of the brain to fuse two flat pictures into a third with depth.

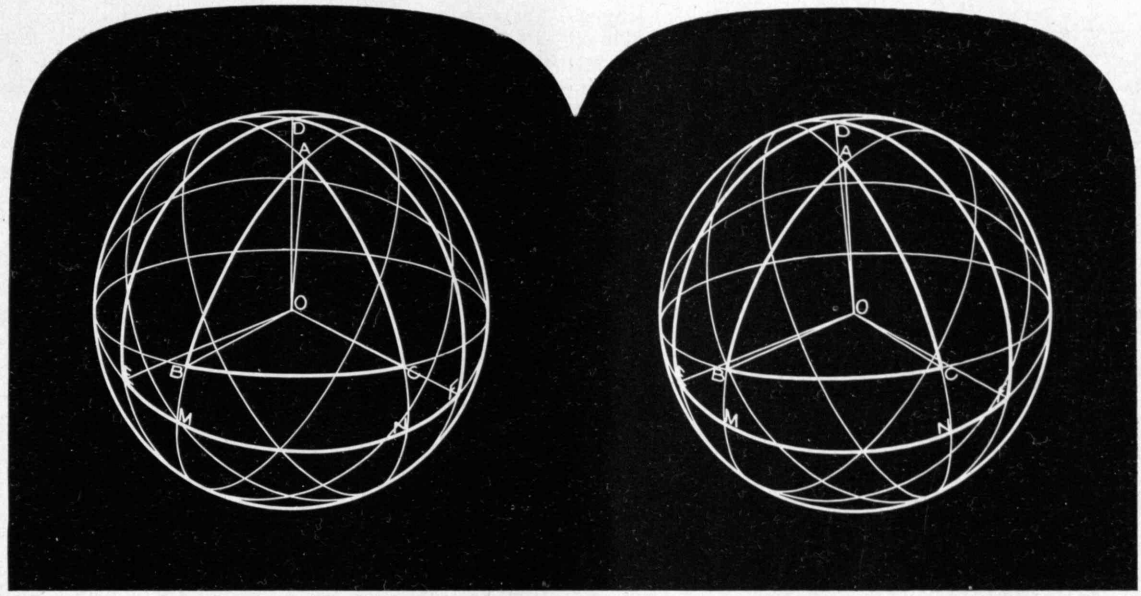
In stereograms the two photographs or drawings are made from centers of perspective separated by the same distance as the eyes, with the result that the angle is slightly different in the two pictures. The shift that occurs as a result of the change in point of view from one eye to the other is known as parallax, and you may



From "Stereoscopic Photography" by Arthur W. Judge

SEE THIS CRYSTAL SPARKLE

Another striking phenomenon of stereoscopic vision may be observed by viewing this stereogram of a crystal through a stereoscope. The crystal appears iridescent or of a silvery color



From the Keystone Series of Solid Geometry Drawings. © by John T. Rule, '21

easily observe it by looking at some object first with one eye closed and then the other. When both eyes are open the two sensations are blended, and when the two pictures of the stereogram are viewed through the two prismatic lenses of the stereoscope a comparable blending takes place, and we see a single picture with depth. The effect of depth or relief can be greatly exaggerated by increasing the distance between the centers of perspective, as though the eyes were farther apart. Thus the observer may be endowed with the eyes of a giant to whom molehills appear as mountain ranges and ditches, as canyons.

In contrast to the stereoscopic camera with its two lenses eye-distance apart, the conventional single-lens camera attempts to present three-dimensional objects in only two dimensions; it seeks to record *volumes* in an *area*. Such one-lens pictures theoretically should be viewed with only one eye, and of course they cannot be combined to make a stereoscopic pair. Unscrupulous photographers of half a century ago foisted upon the public spurious stereograms made up of two prints from a single negative. With such combinations the effect of relief was, of course, unobtainable.

Some of the many varieties of stereograms are shown in the accompanying illustrations, and in the captions suggestions are made for viewing them without or with instruments. Better than words is the experience of seeing stereoscopically, of finding out from visual experiments the startling phenomenon of binocular sight, but if the reader, after finishing this prolegomenon, wishes more exposition, he will save himself much fruitless searching (the literature on stereoscopy is not only rare but astonishingly barren) by proceeding directly to the only modern book on the subject, "Stereoscopic Photography," by Arthur W. Judge, American Photographic Publishing Company, Boston.

For earlier material, more theoretical in treatment, there is William Barton Rogers' "Observations on Binocular Vision," published in 1855. More popular, of course, and extraordinarily interesting are the two articles of Holmes's already mentioned.

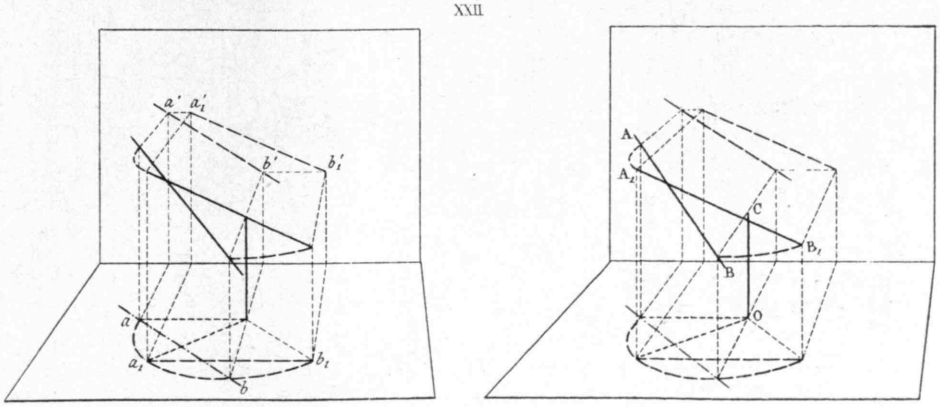
TODAY the most striking uses of the stereoscopic principle are in the fields of education, internal or microscopic examination of objects, and surveying; while the most exciting impending applications lie in the direction of large-scale projection and motion pictures.

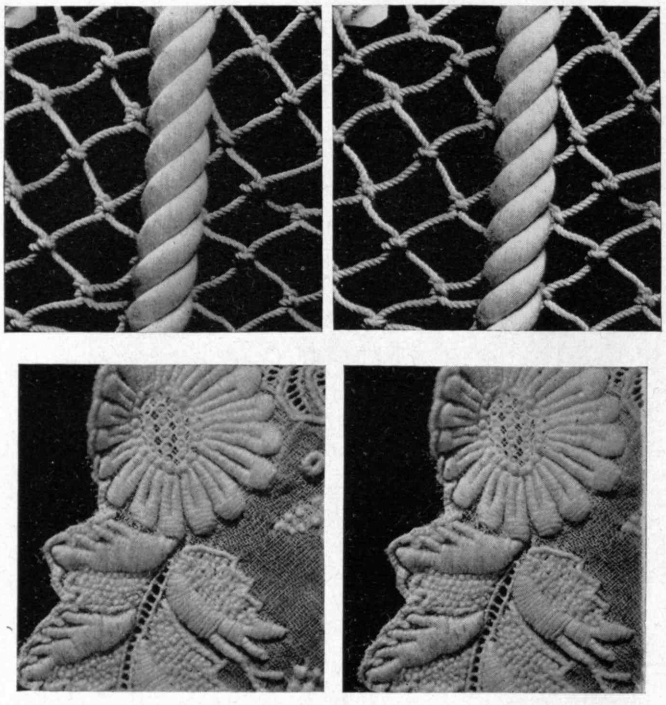
The teaching technique of presenting material in stereogram form has been given much study, to the end that the interest of the pupil, particularly in the early years of his education, may be awakened through impressions of reality. The stereoscope is now being used

GEOMETRY MADE EASIER

Use of the stereoscope is steadily increasing, particularly in surveying, in teaching, and in testing visual efficiency. Here are two stereograms drawn for use in teaching solid (above) *and descriptive* (right) *geometry. The drawing on the right is from a collection of stereographic diagrams drawn by the late Ralph Vose, '87, and recently presented to the Institute by his nephew, Robert W. Vose, '31, now a member of the staff. The draftsmanship is of extraordinary quality in fineness of line and precision, and many of the diagrams are colored to aid in separating the planes*

XXII





THROUGH THE MICROSCOPE

Stereoscopy's application to microscopic examination of textile fibers and fabrics is an important research aid in the Institute's Textile Laboratory. The distortion of yarns into the third dimension is clearly shown, for purposes of synthesis and analysis, in the above stereograms.

Holmes was one of the first to point out the truth-telling quality of the stereogram. A simple photograph may be retouched and manipulated, but in a stereogram the retoucher's marks will float above the picture and never be identified with it. "The impossibility of the stereograph's perjuring itself is a curious illustration of the law of evidence. 'At the mouth of two witnesses . . . shall he who is worthy of death be put to death; but at the mouth of one he shall not be put to death.' No woman may be declared youthful on the strength of a single photograph; but if the stereoscopic twins say she is young, let her be so acknowledged . . ."

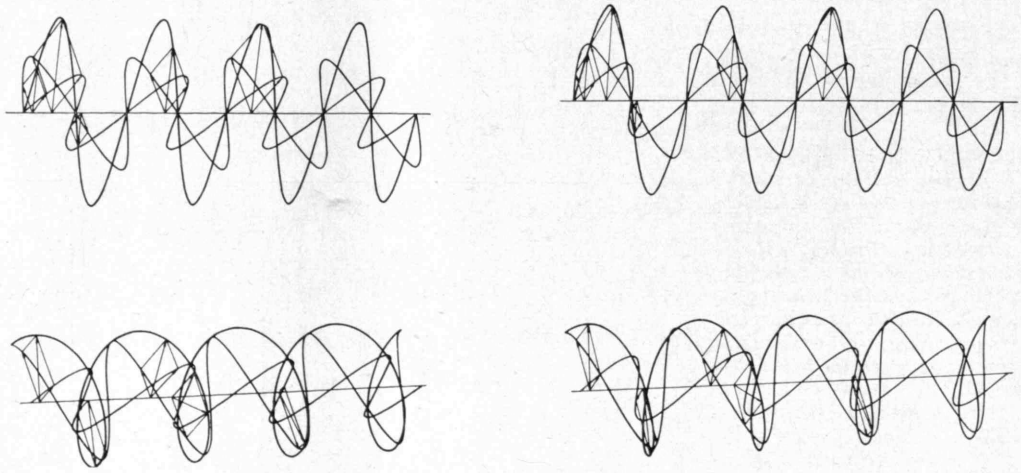
in thousands of schools and the accepted practice is to correlate subject matter with appropriate stereoscopic illustration. This is particularly important in studies which deal with subjects for which the pupil has no background of experience from which to develop correct impressions — the effect of lifelike reality which is presented in third-dimensional vision.

The importance of a strong impression of reality to induce and maintain a high level of interest is emphasized by G. E. Hamilton, educational director of the Keystone View Company, in a monograph on "The Stereograph and Lantern Slide in Education," which presents a comprehensive study of these visual aids to teaching. "When you bring to a student an approximation of the correct shape or relationship in space of a thing or situation," says he, "you have brought to him the most important element that can contribute to impressions of reality and of fact."

A good example on the secondary-school level is the teaching of geometry. The teacher of solid geometry who attempts to explain his subject by means of two-dimensional photographs or diagrams is working under a great handicap, for involved geometrical figures are difficult to describe, but the student who can see diagrams in the third dimension, such as those on page 193, is greatly aided in understanding the properties of a line, curve, or solid in space in relation to its three coördinate planes.

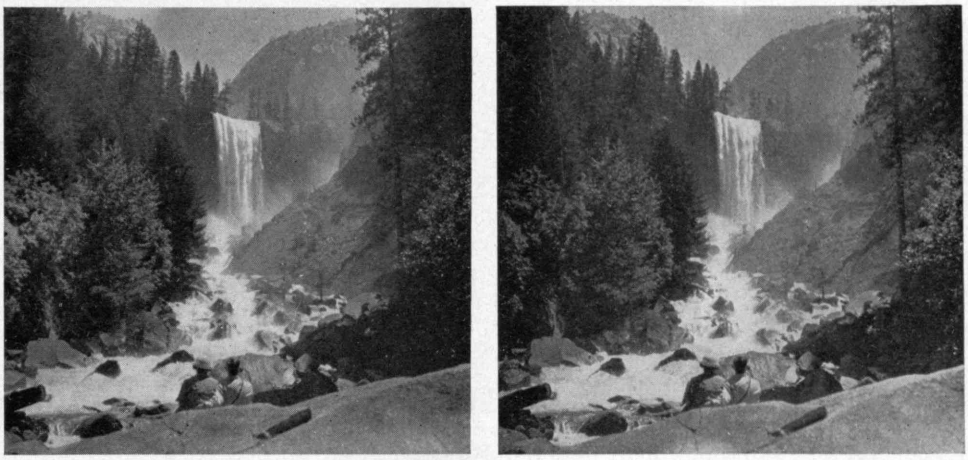
When youngsters encounter reading difficulties in the primary school, stereoscopic equipment is frequently used to detect the symptoms of reading disabilities that are of a binocular nature, and then, in turn, it is used for remedial eye-training exercises to help sluggish eyes to focus sharply, to fuse images they see, and to distinguish depth. This educational work is an outgrowth of methods developed by optometrists and ophthalmologists who constantly use stereoscopic principles in the detection and correction of visual defects.

The stereoscope is useful not only on the secondary-school level; it is found in the college classroom and laboratory as well. In the teaching of optics, for example, the stereoscope simplifies the task of representing the paths of light rays in three dimensions. The conventional diagram of simple lenses usually shows a mass of superimposed lines representing the light rays, but in a stereogram every line appears in proper position, and the paths of the rays are clearly seen. The student frequently has difficulty in understanding the polarization of light, which is essentially a three-dimensional phenomenon, but with the stereoscope he is able to follow every phase of wave formation and the changes in the paths of the light waves as they are



PROBABLY THE MOST COMPLEX

. . . stereoscopic drawing ever made and here published for the first time. Drawn by John T. Rule, '21, Assistant Professor of Drawing, it represents plane polarized light (upper pair) *and circularly polarized light* (lower pair)



"SUN SCULPTURE"

Above and below. *Two stereograms taken by Dean Vannevar Bush, '16*

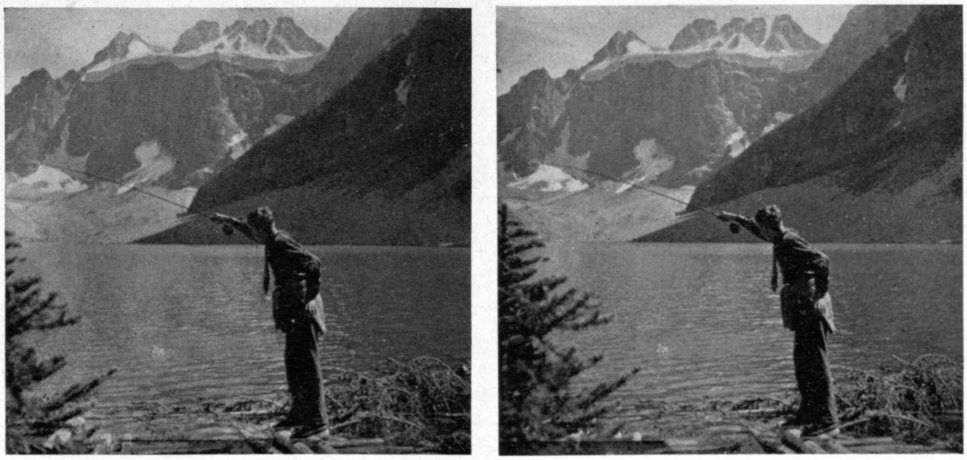
propagated through space. For instruction in anatomy the stereoscope permits extraordinary demonstrations of the relations of the various organs of the body, as well as of blood vessels, nerves, and muscles. The method has been used effectively in England, where the various stages of surgical operations have also been recorded stereoptically.

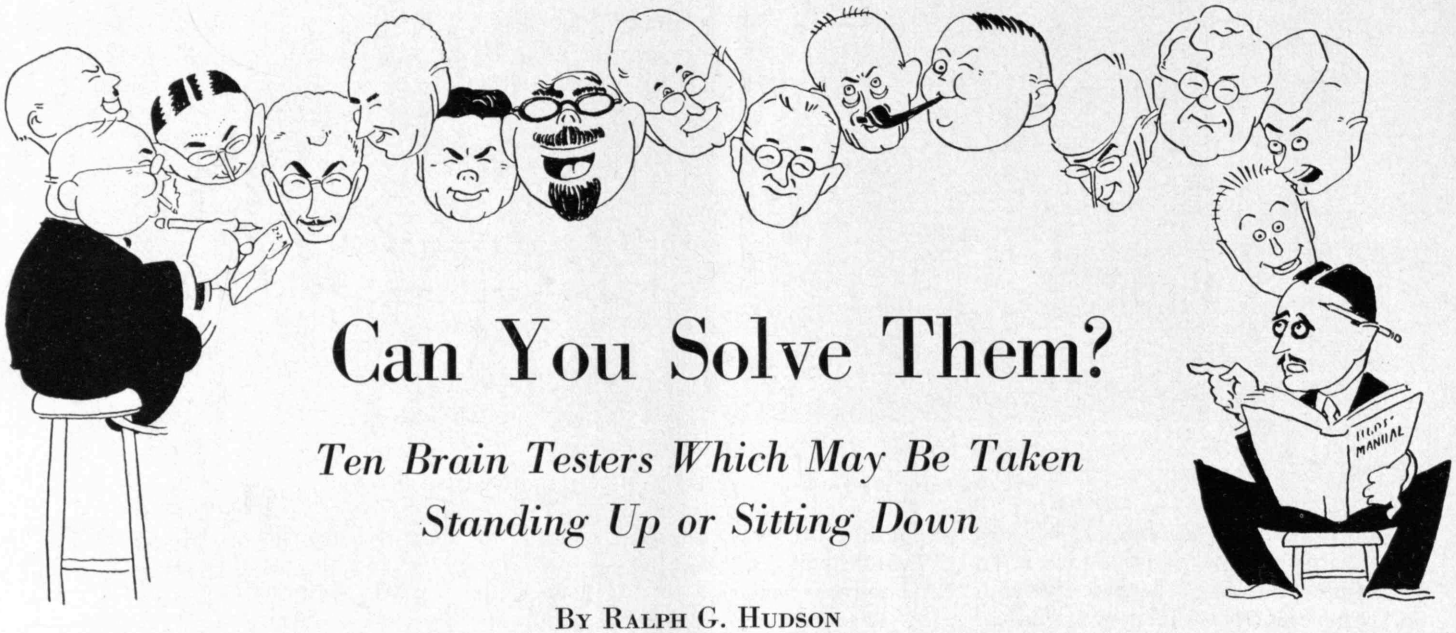
Several research workers are now seeking better projection methods for classroom use, and if they are successful, the classroom will finally be released from the limitations of the plane surface.

The astronomers, always quick to avail themselves of new tools to probe their limitless fields, had no hesitation about associating themselves with the stereoscope early in its giddy youth. What they accomplished was to make three-dimensional photographs of bodies of the solar system, which, because of their great distance, are seen ordinarily *in plano;* however, a sufficient displacement can sometimes be obtained with objects in the solar system to produce the stereoscopic effect. The stereoscopic combination is usually obtained by shifting the camera between pictures or by displacing the object to gain a slightly different point of view. In stereoscopic photography of the moon the lunar libration conveniently supplies the necessary displacement between photographs. As early as 1857, Thomas De la Rue made lunar stereograms which left no doubt that the satellite is a solid globe. By waiting for the libration, or swing of the body, De la Rue obtained photographs which represented a displacement of 20,000 miles, or, figuratively, the distance between the eyes of a mythical giant.

One of the most important applications of the stereographic method is its use in x-ray work for determining the location of foreign objects or defects in solid bodies. In medicine it has been of incalculable value, and the same technique has many industrial applications, particularly in metallography for the detection of defects in heavy castings of intricate construction. The method is also used for the examination of timber and welded metal fittings, and has possibilities for stereoptically determining the exact location of foreign objects in cartons containing a large number of small individual packages. Defects in die castings, especially those made up of various complex interior layers or parts, blow holes or slag inclusions in welded joints, the position of reinforcing steel in concrete construction, and hair cracks in steel may all be accurately located by stereographic examination.

An application of special significance in medicine and for industrial examination is stereoscopic fluoroscopy, a technique which produces the stereoscopic image on a fluorescent screen. This method requires two x-ray tubes, the ray axes of which are separated by a distance equal to that between the eyes (*Continued on page 204*)





Can You Solve Them?

Ten Brain Testers Which May Be Taken Standing Up or Sitting Down

By Ralph G. Hudson

A CONSIDERABLE number of people at some time or other have been confronted with the task of giving an explicit answer to a definite problem. The usual reaction to such an inquiry indicates that among our compatriots there are two classes: One is inherently uninterested in the art of precise reasoning and wishes to turn the subject. The other class, at the mere suggestion of a new problem, begins to experience ripples in the folds of the brain and will not retire that night until a satisfactory answer is found.

This article is dedicated to the latter class, and since similar articles in The Review have met with an enthusiastic reception, it may be presumed that the subscribers in general possess a propensity for any exercise which will stimulate mental activity. It is not improbable that such exercises strengthen the functions of the brain as effectively as physical exercises strengthen the muscles of the body.

Among the reasoning fraternity there is still another subdivision: One group is excited only by a formidable array of premises which require extensive mathematical manipulations and operations before a concrete result may be expected; the other group favors a brief problem which may be solved standing up or which at least succumbs to a quick computation on the back of an old envelope. Since the purpose of this article is to present a diversity of mental exercises, the problems for the most part are short and require no knowledge of higher mathematics.

Having due respect for the nature of our audience, it is evident that the problems should not be so simple as to arouse contempt. If you were told, for example, that a stenographer, after typing a sentence, found that the space bar was out of order, that one letter did not register or space, and that the sentence read, "xfrddnsk nwgdprtfrmpr," would you not at once suspect a bibulous connotation?

The selection of problems for meditative readers may not include, moreover, the type best propounded over the demitasse. There, you might naively ask: "Starting at 12 o'clock, how many times will the minute hand of a clock pass the hour hand in 12 hours?" — and cause considerable delay in digestion. But here, in a magazine article, somebody might either turn the hands of a watch around or, in the case of congenital indolence, watch the clock for 12 hours.

With occasional exceptions, no pretense is made that the problems are new. Among the older readers who have followed the game it is to be expected that the selection will contain many revivals. It has often been asked why the purity of a certain soap should be so steadily reiterated in the advertisements. The answer of course is that to the younger generation the claim is ever new. For the same reason the moss on an old problem remains forever green.

An effort has been made to exclude all types of ambiguous or trick problems. Nothing exasperates the logical mind so thoroughly as to discover after several hours of effort that the statement of the problem may have a peculiar interpretation. A simple example of this type is the problem requiring the rearrangement of the letters of "new door" into one word. The answer is "one word." It is often difficult in the brief statement of a problem to avoid an unintended ambiguity upon which the unsuccessful worker will lean heavily. It may be said that the statements which follow have been sufficiently tested on the young and old to remove the probability of such uncertainty.

No. 1 Wood in the Water.

A straight-sided tank with a bottom area of 4 square feet contains water 9 inches deep. If a one-foot cube of wood with a density two-thirds that of the water is placed in the tank, what will be the distance from the top of the floating block of wood to the bottom of the tank?

No. 2 ELEVEN HADS.

A stenographer took down the following sentence in dictation: "James where John had had had had had had had had had had had had the professors approval." How should the sentence be punctuated to make sense?

No. 3 THE COLLEGE COLORS.

In a certain college the president, a professor, an instructor, and a janitor are named Mr. Brown, Mr. Green, Mr. White, and Mr. Black, but not respectively. Four of the students have the same names and are designated as Brown, Green, White, and Black.

(a) The student with the same name as the professor belongs to Black's fraternity.

(b) Mr. Green's daughter-in-law lives in Philadelphia.

(c) The father of one of the students always confuses White with Green in class and, parenthetically, is not absent-minded.

(d) The janitor's wife has never seen Mr. Black.

(e) Mr. White is the instructor's father-in-law and has no grandchildren.

(f) The president's oldest son is seven.

Determine the respective names of the president, the professor, the instructor, and the janitor.

FREE!

Prizes for Solving These Problems

TO EACH of the first five readers of The Review who submit correct answers to the ten problems in this article, The Review will give a free subscription. This may be taken as a subscription for a friend or as a year's extension of the reader's own subscription or dues payment. Members of the M.I.T. staff are excluded.

Address solutions to The Technology Review, Room 11–203, M.I.T., Cambridge, Mass. No solutions can be returned. The Editors of The Review together with the author of this article will constitute the jury to award the subscriptions, and their decisions will be final.

Winners' names and correct answers to the problems will be published in the next issue of The Review.

No. 4 WATER AND WINE.

A glass contains a certain volume of wine and another glass an equal volume of water. A teaspoonful of wine is taken from the wine glass and mixed thoroughly with the water in the water glass. A teaspoonful of this blend is then mixed with the wine in the wine glass. Is the percentage of water in the wine glass greater or less than the percentage of wine in the water glass?

No. 5 TABLE IN THE CORNER.

A large circular table is placed in the corner of a room with its edges touching the two walls. The normal distance from a spot on the edge of the table to one wall is 8 inches and to the other wall, 9 inches. What is the diameter of the table?

No. 6 RELATIVITY OF MOTION.

Trains leave the opposite terminals of a railroad system day and night every hour on the hour and complete the trip without stops in four and one-half hours at uniform speed. No other trains operate on these tracks. A passenger on one of the trains counts the number of trains that pass. How many would he count?

No. 7 TWO COINS.

A boy wrote to a collector of coins to inquire as to the value of two coins that he had found. In his description he said: "One coin is of silver stamped with a head and bears the words 'Caesar — 46 B.C.' The other is a copper farthing also stamped with a head and bears the words 'George I — 1714 A.D.'" The collector replied that coins of this type had been issued but that the coins in question were both counterfeit. How did he know?

No. 8 SCALES AND WEIGHTS.

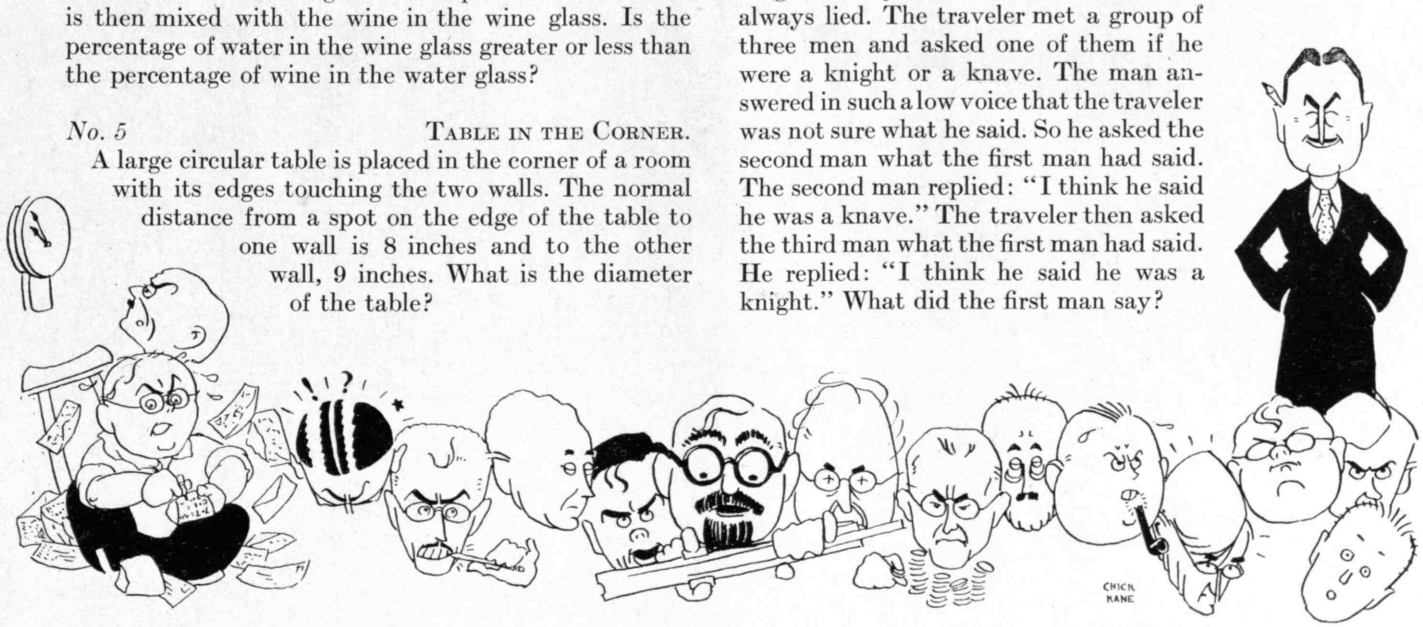
What are the minimum number and the sizes of the weights required to weigh objects in one-pound steps up to 40 pounds on a pair of scales?

No. 9 SIX NINES.

In what different ways may six 9's be arranged so that the indicated mathematical operation gives 100? For example, $99+\frac{9}{9}\frac{9}{9}=100$.

No. 10 KNIGHTS AND KNAVES.

A man was traveling through a country in which all the inhabitants were either knights or knaves. The knights always told the truth while the knaves always lied. The traveler met a group of three men and asked one of them if he were a knight or a knave. The man answered in such a low voice that the traveler was not sure what he said. So he asked the second man what the first man had said. The second man replied: "I think he said he was a knave." The traveler then asked the third man what the first man had said. He replied: "I think he said he was a knight." What did the first man say?



The Educated Workman

What He Is Contributing to Industry

By Karl Polanyi

RECENTLY I heard a severe critic of Soviet Russia — and, incidentally, an eminent chemist — admire the new kind of link emerging between industrial and intellectual work in that country. The dispersion of education among factory workers begins to transform in a mysterious way the nature of their jobs, he said. Something similar is happening in the United States before our eyes.

All over the United States, the casual observer will find educated boys engaged in technical work of an industrial character. I do not mean the self-supporting boy, or girl, who earns his, or her, way through college. This is neither a new nor a specially vital phenomenon, nor is it unknown in Europe, where, on a minor scale, it finds its counterpart in the *Werkstudent* of post-War years. I mean the entirely different case of the young man in regular employment in the manufacturing or distributing trades or services, having procured his job on the strength of an education. I have visited one of the biggest American tool factories of the Middle West and found that it was giving preference in its workshops to college boys (at higher rates). The elderly foreman was storming in vain against this new-fangled practice; the management itself was steadily forging ahead with it. Usually only high-school education is required, but more and more frequently the boy with one or two years of college wins the race. This applies even to road jobs, where timekeepers, tool keepers and, of course, foremen are expected to have an education. Similarly it holds true of automobile mechanics in garages, in repair shops, especially if their jobs bring them into contact with the public. Add to this the army of office and shop clerks as well as those in other occupations regarded either as white-collar jobs or as belonging to the category of service, and everywhere you will find education as the decisive factor in securing employment. The depression undoubtedly greatly accelerated this development; however, it is important to realize that it neither started nor, in fact, entirely conditioned it. The slump has passed, but the process continues. And the wealthier a community grows, the more does it give room to that category of occupations (services) which is the spearhead of this development.

A modern industrial society needs two things which until now have proved mutually incompatible: a great mass of technical labor and a high average of education through the whole range of society. Education today turns a man either into a professional or into a dissatisfied manual worker. Moreover, the need for professionals is limited, and when supply exceeds demand, a shiftless intelligentsia arises which lacks any real productive functions in society. Attempts to take the educated man back to the land or the factory inevitably break down in the face of the poor character of the work he would be expected to perform. All efforts to overcome this antinomy must ultimately fail unless the nature of industrial work itself be transformed.

The cleavage between a rising level of general education and the need for work more easily performed by the uneducated than by the educated is one of the few industrial problems that not even a change in the property system can, by itself, remedy. The solution proposed by Continental Socialist Karl Kautsky was to "free the worker from work," *i.e.*, to shorten hours to the point of making life synonymous with leisure. This is obviously no solution; in fact, it serves only to indicate how deeply the problem is inherent in a civilization based on machines. No human existence can be regarded as sound that would have to seek for its essential meaning outside its normal productive functions. To shift the center of life into leisure hours is a suggestion that springs either from a superficial notion of life or is merely a counsel of despair. Adult education can provide no answer to this problem. Education which a man acquires in later life can never affect the basic requirements of his job. Such an education may assist him in bettering his position in his own walk of life, it may increase his earnings, improve his personal status, but it can effect these only by promoting him from his dull and dreary job to a higher type of work. The job itself remains what it was; it is merely waiting for another man to take it.

In America, the job itself is changing under the influence of the better education of those who perform it. The fact that education is becoming a requirement of employment proves this to all practical purposes. It happens in many different ways. A true and accurate record of work is required from the foreman on a road construction contract, the manager of a service station, the mechanic of a repair shop. More accurate methods of costing and a more complex method of administering taxation are factors in the situation. A statistical mind is encouraged in the employee to make him produce more and better material for the purposes of a varied accountancy. Incidentally, overhead costs are being cut down by shifting the burden of supervision onto the lower grades. The man in the local store cannot afford loose methods of accounting in the face of chain-store competition; he must face this fact in choosing his errand boy. Some measure of bookkeeping is now almost universally required where technical work is combined with some commercial activity. Accordingly, the system devised by the head office will look for appropriate qualities in the applicants. Once this method is established, overhead costs are reduced to develop it on the same lines, instead of increasing the personnel of supervision. As a result, the nature of the job itself is transformed. It will no more be run, as before, with that utter indifference to its place in (*Concluded on page 210*)

THE INSTITUTE GAZETTE

PREPARED IN COLLABORATION WITH THE TECHNOLOGY NEWS SERVICE

College Endowments and the Future

ALTHOUGH the past three decades have generally been considered the golden age of college endowments, the feeling has been growing among competent observers that benefactions in the form of gifts and bequests may be on the wane. Consideration of the effects of the depression and the recent statutes on gift and inheritance taxes lent further support to the possibility that, in the future, endowed colleges may have to look for new sources of income. A recent survey by the John Price Jones Corporation shows, however, that from 1930 to 1936, the depression years, donors were particularly generous to American colleges, a fact that renews hope that support from this source may be counted upon in the future.

From 1930 to 1936, 46 colleges and universities, including colleges for women, received a total of $244,000,000 in gifts and bequests, and it is particularly interesting to note that gifts exceeded bequests by the tidy sum of sixty-two million. The following digest of the John Price Jones summary in millions of dollars shows that in every year of the depression gifts led bequests by substantial sums:

	Gifts	*Bequests*	*Total*
1930–1931	45	33	78
1931–1932	27	21	48
1932–1933	21	5	26
1933–1934	17	6	23
1934–1935	21	10	31
1935–1936	22	16	38
	153	91	244

It is of interest that of the total $244,000,000, Yale leads with fifty-eight million, Harvard received forty million, Chicago twenty-eight million, and Columbia fifteen million. Technology received $4,700,000 from these sources in this period, and through the recent benefaction of Charles Hayden, '90, together with other substantial gifts and bequests, will very considerably improve its figure for 1936–1937.

The effect of the recently enacted gift and inheritance taxes will be watched with interest when these figures are projected through the next two or three years. If it appears that the additional capital which will be needed by institutions to carry on their programs is not to be forthcoming from these hitherto dependable sources, and if the yield of the investment of the endowments already held by these institutions continues to decline, then the resulting increased costs must be met by increased tuition fees. That several institutions have already made increases or are considering such for the near future indicates that the institutions have been considering these matters in advance and recognize the changes that are likely to occur in their financial operation.

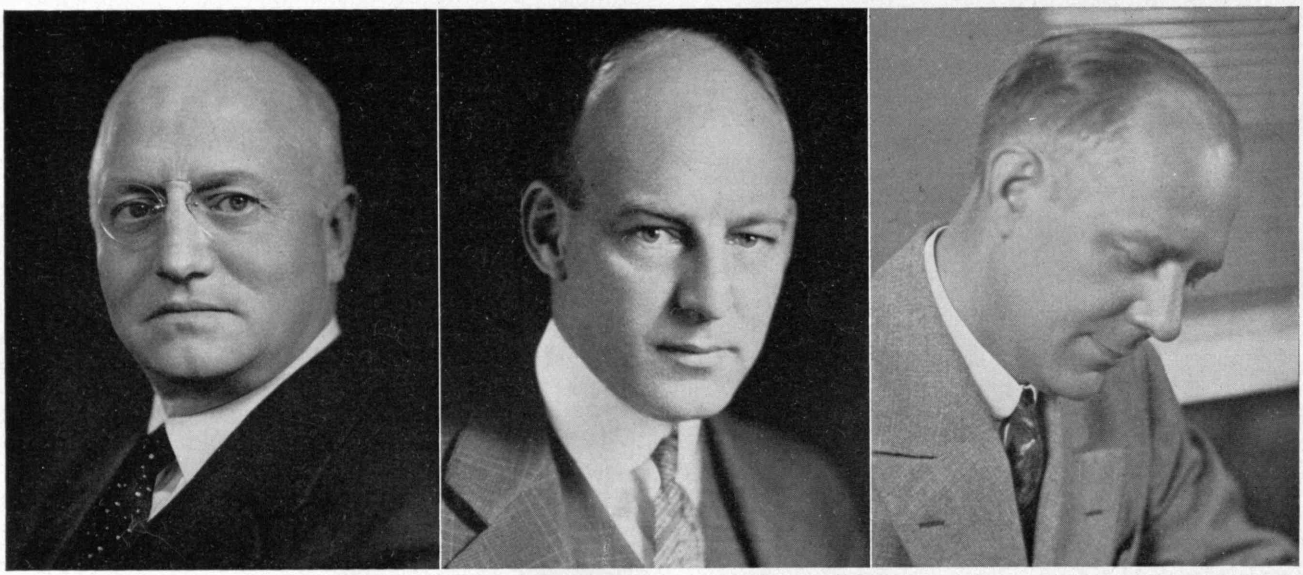
At the recent annual meeting of the Association of University and College Business Officers of the Eastern States (of which Treasurer Horace S. Ford is secretary-treasurer), the astonishing growth in college endowments since the turn of the century was discussed by Trevor Arnett, who recently retired as president of the General Education Board of the Rockefeller Foundation. An eminent authority on the business management of educational institutions, he referred not only to the enormous increase in college resources but to the growing responsibilities of administering them.

Mr. Arnett found that during the past 36 years there had been an expansion in college resources many times greater than in any former period — an expansion not alone the result of the creation and endowment of new institutions but shared in, to an astonishing degree, by the older established ones. In 1900, for example, the endowment of Yale University was five million dollars; now it is approximately one hundred million dollars. Harvard had about twelve million at the beginning of the century, and its endowment now exceeds one hundred-thirty million, excluding its buildings and grounds. The University of Chicago has increased its endowment 12 times, to seventy million dollars. The University of Rochester has an endowment of fifty million against a negligible figure in 1900. Technology's total endowment has increased elevenfold from three million to thirty-three million dollars.

It may be stated generally that the endowed colleges have seen their endowment funds increase ten times from the total of $166,000,000 reported by the United States Department of Education for the year 1900 and have seen their receipts from all sources increase from twenty-eight million in the latter year to $566,000,000 for the year 1934. The General Education Board alone, since its foundation in 1902, has made gifts for endowment purposes approximating the total of the endowment held by all institutions of higher learning in 1900.

Turning to the responsibilities that go along with such an expansion, Mr. Arnett pointed out that corresponding improvements had been taking place in university administration and financial methods and procedures. His experience both with the University of Chicago and the General Education Board gave him an unusual opportunity to watch the developments in these fields. He has found a continuingly earnest and persistent desire on the part of the business and financial officers to improve their practices, and that special attention has been given to the subject of endowment, about which hazy ideas and rather lax practices prevailed at the beginning of the century.

Looking back over the period, Mr. Arnett comments: "Perfection has not been obtained, but the business administration of the institutions of higher learning is on as high a plane as the administration of the best business and commercial organizations."



THE ALUMNI PRESENT

. . . as nominees for Term Membership on the Technology Corporation these three (from left to right): *Albert F. Sulzer, '01, Vice-president, Assistant General Manager, and Director, Eastman Kodak Company; George E. Whitwell, '15, Vice-president in Charge of Sales, Philadelphia Electric Company; William E. R. Covell, '23, Lieutenant Colonel, Corps of Engineers, United States Army, District Engineer*

Alumni Elections This Month

ALUMNI participate in the administration of the Institute in many ways. The President of the Association sits on the Corporation and on the Administrative Council; the Council nominates members of Department Visiting Committees; and the Alumni, through a national nominating committee which they elect, nominate each year three Alumni to the Corporation. The Institute community is truly a democracy, and this fact imposes upon each Alumnus a responsibility to exercise his franchise as a voter.

This month thirty thousand Alumni will receive the Association's annual ballot, and they will find on this ballot, which they are urged to fill out and return promptly, the nominations for the officers of the Alumni Association and for representatives on the Institute Corporation, together with nominations for new members of the National Nominating Committee. This important committee now includes Harry J. Carlson, '92, J. Lloyd Wayne, 3d, '96, Frederic E. Everett, '00, John F. Ancona, '03, Franklin O. Adams, '07, Albert E. Wiggin, '07, Donald N. Frazier, '11, Charles H. Chatfield, '14, James A. Burbank, '16, and Rolfe A. Folsom, '18.

The slate selected by the National Nominating Committee this year is as follows: *President*, Marshall B. Dalton, '15, I, Boston Manufacturers Mutual Fire Insurance Company; *Vice-president*, Charles R. Boggs, '05, V, Simplex Wire and Cable Company; *Executive Committee*, George A. Packard, '90, III, Consulting Mining Engineer, and Joseph P. Draper, '00, IX, Draper and Company, Inc.; *Representatives at Large*, Arthur L. Hamilton, '99, III, retired, Edward H. Davis, '01, IX, Scovill Manufacturing Company, Herbert D. Swift, '15, II, retired, Anthony Anable, '20, XV, The Dorr Company, and Edwin D. Martin, '22, III, Thomas A. Edison, Inc.; *Corporation*, Albert F. Sulzer, '01, X, Eastman Kodak Company, George E. Whitwell, '15, XIV, Philadelphia Electric Company, and William E. R. Covell, '23, I, United States Engineer Office.

Since four members of the National Nominating Committee (Harry J. Carlson, '92, Frederic E. Everett, '00, John F. Ancona, '03, and James A. Burbank, '16) retire this year as representatives, respectively, of Districts 1, 2, 4, and 5, nominations have been made to fill the vacancies they leave. There is more than one nominee for each of these districts and the alumni body votes to select one to represent each of the districts. These nominees are: *District 1:* Edward L. Moreland, '07, VI, Professor, Electrical Engineering, M.I.T.; Henry B. Shepard, '16, II, Stowe-Woodward, Inc. *District 2:* Redfield Proctor ,'02, II, Vermont Marble Company; Roderick J. MacGregor, '03, VI, The John MacGregor Company; Stanley W. Hyde, '17, VII, North Yarmouth Academy. *District 4:* Ralph C. Robinson, '01, V, General Electric Company; Frederick W. Barker, Jr., '12, X, First Trust and Deposit Company, Syracuse, N. Y.; Donald B. Webster, '16, X, Garlock Packing Company. *District 5:* Winfield I. MacNeill, '17, XV, Colgate-Palmolive Peet Company; Alfred T. Glassett, '20, I, W. J. Barney Corporation; Clayton D. Grover, '22, V, Whitehead Metal Products Company.

Awards to Schools

TANGIBLE recognition of secondary schools whose students excel in the five principal freshman subjects is to be given by the Institute in an annual series of Technology awards for high scholastic standing in physics, chemistry, calculus, English, and drawing and descriptive geometry. The first of these awards, which are in the form of volumes carefully selected for their value to school libraries and bound specially, have

just been announced by Dean H. E. Lobdell, '17. Each volume will bear a specially designed bookplate inscribed with the name of the student and the subject in which he excelled, and will be signed by President Compton. Presentation of the awards to schools near the Institute will be made by members of the Technology Faculty, while the Honorary Secretaries of M.I.T. are to make the presentations in more distant places.

Students of the Class of 1939 whose high scholastic standing in the various subjects entitles their schools to this year's Technology Awards are: Edward P. Bentley, mathematics, physics, chemistry, descriptive geometry, and English, North Quincy High School, Quincy, Mass.; Hendrik Bruijnes, physics, Bellows High School, Mamaroneck, N. Y.; Harold Chestnut, chemistry, Nott Terrace High School, Schenectady, N. Y.; Eli M. Danenberg, chemistry, Central High School, Bridgeport, Conn.; Richard P. Feynman, mathematics and physics, Far Rockaway High School, Far Rockaway, N. Y.; David S. Frankel, English, Worcester Classical High School, Worcester, Mass.; C. William Guy, chemistry, Walnut Hills High School, Cincinnati, Ohio; Seymour E. Heymann, English, Blake School, Minneapolis, Minn.; the late Millard B. Hodgson, Jr., descriptive geometry, Brighton High School, Brighton, N. Y.; George W. Krebs, English, Southwest High School, Kansas City, Mo.; Richard S. Leghorn, physics, Winchester High School, Winchester, Mass.; Harry J. Mason, mathematics, chemistry, descriptive geometry, English, Atlantic City High School, Atlantic City, N. J.; Morris E. Nicholson, mathematics, descriptive geometry, Cleveland Heights High School, Cleveland Heights, Ohio; Stuart Paige, descriptive geometry, Brooklyn Polytechnic Preparatory Country Day School, Brooklyn, N. Y.; William H. Phillips, mathematics, physics, Belmont High School, Belmont, Mass.

The Crucible of Discussion

TO see plant metallurgist question academic physicist, and industrial physicist cross-examine plant chemist; to hear seemingly practical phenomena like the creep of steel and the mechanics of rolling described by powerful mathematical methods; and to listen to the latest interpretation of the electron theory of metals — such was the Symposium on Metals held at the Institute under the joint auspices of Technology and the American Institute of Physics on January 28, 29, and 30. Organized with the object of bringing physicist, chemist, and metallurgist together to discuss fundamental problems of iron and steel, the symposium was an unqualified success, for the various papers and ensuing discussions permitted an illumination of subject matter and an integration of viewpoint seldom attained in scientific meetings. The 18 specialists had as an audience leaders in their fields of interest from various parts of the East, as well as a large group of the Institute's staff.

Professor John C. Slater, Head of the Institute's Department of Physics, opened the meeting with an admirably presented paper on "The Electronic Structure of Alloys." Without the bugaboo of mathematical formulas he was able to show the modern quantum theoretical picture of a metal, how the properties of ferrous metals and alloys may be interpreted by an electron theory, and how such theories bid fair to be as useful a tool to the metallurgist of this generation as thermodynamics was to the last. Another paper which engendered much discussion was that of Assistant Professor John Wulff, who showed that all the tools of a technical and theoretical nature, whether they be physical or chemical, needed to be and could be employed to study the perplexing corrosion phenomenon called pitting. He described the prevalence of pitting in the so-called passive or rustless alloys of the present day. Professor P. W. Bridgman of Harvard University talked about his latest results on the flow of metals under high pressures, and Dr. A. Nadai, consulting mechanical engineer of the Westinghouse Electric and Manufacturing Company, discussed creep phenomena at high temperatures. The latter paper raised much discussion, for the subject is one of the least understood of present-day phenomena concerning steel.

Bachrach

FOR THE PRESIDENCY

. . . of the Alumni Association for 1937–1938 the sole nominee is Marshall B. Dalton, '15. Mr. Dalton is president of the Boston Manufacturers Mutual Fire Insurance Company and of the Paper Mill Mutual Insurance Company, vice-president of the Worcester Manufacturers Mutual Insurance Company and the Fall River Manufacturers Mutual Insurance Company, and a director of the Liberty Mutual Insurance Company as well as of the previously named companies. He is senior councilor of Phi Gamma Delta Fraternity and a member of the corporation of the Boston Five Cent Savings Bank

One session was devoted to a discussion of some commonly used research tools as aids in the solution of problems in the fields of metals. All three papers — that of Professor George R. Harrison, Director of Applied Physics at the Institute, on "Possibilities and Limitations of Spectrographic Analysis of Ferrous Materials," that of Professor John T. Norton, '18, Associate Professor of the Physics of Metals, on "The Use and Limitation of X-ray Diffraction," and the paper presented by Dr. C. J. Davisson, Research Physicist of the Bell Telephone Laboratories, on "What Electrons Can Tell Us About Metals" — aroused great interest, for, though specialized, each emphasized the limitations as well as the advantages of spectroscopic, x-ray diffraction, and electron diffraction studies, respectively.

The hundred guests who assembled at a dinner at the end of the second day of the symposium heard addresses by President Compton and Professor Albert Sauveur, '89. The speech of the former in a humorous and philosophical vein emphasized the necessity for kinship in the various sciences and in education. Dr. Sauveur, the dean of American metallographists and professor emeritus at Harvard, talked eloquently of the historical development of metallography. Professor George B. Waterhouse, eminent metallurgist, Vice-president of the Society of Metals, and Professor at the Institute, presided.

The last day of the session had such eminent speakers from industry as Dr. Zay Jeffries, technical director, incandescent lamp department of the General Electric Company; Dr. A. B. Kinzel, '21, chief metallurgist of the Union Carbide and Carbon Research Laboratories; Dr. S. L. Hoyt, director of metallurgical research of the A. O. Smith Company; and Dr. Edgar C. Bain, assistant to the vice-president of the United States Steel Corporation. Dr. Kinzel's paper, in which the role of internal strains in steel was discussed, brought forth a number of interesting and profitable comments. Dr. Bain's ably presented paper dwelt mostly on the metallography of steel.

Fellows

CLOSELY following the announcement in January that the Sylvanus Albert Reed Award of the Institute of the Aeronautical Sciences had been given to Professor Edward S. Taylor, '24, came news that the fellows of the same institute had elected Professors Joseph S. Newell, '19, and Otto C. Koppen, '24, to that distinguished company of nearly 50 leaders in the aeronautical sciences. Like Professor Taylor, the new fellows are members of the staff of Technology's Course in Aeronautical Engineering.

Professor Newell is an expert in the structural design of airplanes and originator of certain standard methods of stress analysis used in the aircraft industry. He is a native of Springfield, Mass. His Course at M.I.T. was Civil Engineering. He joined the staff as a research assistant in 1920, and after experience in industry returned as an instructor in 1927. He was made assistant professor of structural engineering in 1928 and two years later was appointed assistant professor of aeronautical structural engineering.

Professor Koppen's field is airplane design and he has made important contributions to methods of design to increase stability and control in flight. He is a native of Brooklyn, N. Y., and a graduate of M.I.T. in general engineering. From 1923 to 1924 he served as an instructor in aeronautics. He returned to M.I.T. from industry in 1929 as associate professor of aeronautical engineering

Elected

JOSEPH T. WOODRUFF, '17, Assistant Professor of Regional Planning at M.I.T., was elected secretary-treasurer of the American City Planning Institute at the recent annual meeting in New York. Professor Woodruff is also consultant to the New England Regional Planning Commission as well as to the Connecticut State Planning Board and the Fairfield County Planning Association.

At the same meeting Frederick J. Adams, Assistant Professor of City Planning, was elected a member of the board of governors of the American City Planning Institute for a term of three years. Mr. Adams is in charge of the Course of City Planning and is also consultant to the town planning boards of Gloucester, Reading, and Wellesley, Mass.

Edwin S. Burdell, '20, Associate Professor of Sociology, has been elected chairman of the permanent National Committee on Instruction and Research, which will carry on its work under the auspices of the housing agencies of the Federal government and the National Association of Housing Officials. Carl L. Feiss, '36, a former graduate student in the Course in City Planning, is secretary of the committee, which includes among its members Walter R. McCornack, '03.

This committee will concern itself with the coördination of research in the planning, construction, financing, and management of mass-housing schemes, both public and private. Much technical information as well as practical experience is at hand, but the best method of making it available to the increasing number of state and municipal governments and public officials is still to be solved. The matter of college courses in housing and the enlightenment of the general public as taxpayer and investor are other important items in the agenda of the committee, which is composed of ten educators, public administrators, and businessmen.

In China

PROFESSOR KARL L. WILDES, '22, of the Department of Electrical Engineering, is now in China where he was invited to give a series of lectures at the National Tsing-Hua University in Peiping. His course there is expected to follow closely his advanced work in electric power circuits at the Institute. Crossing by way of France, Germany, and Russia, Professor Wildes arrived at the Chinese university soon after the opening of its second term. He will lecture there until June, after which he plans to devote some time to the study of electrical engineering methods in China, India, and Europe. He is accompanied by Mrs. Wildes and will return to the Institute in time for the opening of school next autumn. (*Continued on page 212*)

For over fifty years Norton Abrasive research has carried on. Norton scientists solving vital problems of workers in iron, steel and other metals. They have created GRINDING WHEELS for thousands of operations for use in a million ways.

The Norton line of wheels runs from tiny mounted points 3/32" x 1/8" to gigantic pulpstones six feet in diameter, 54" wide and weighing ten tons. There are many types of special wheels for special jobs—crankshaft grinding, roll grinding, surface grinding, tool grinding, internal grinding, saw and knife grinding and countless other operations.

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NORTON COMPANY, Worcester, Massachusetts

NORTON ABRASIVES

SEEING SOLID

(*Continued from page 195*)

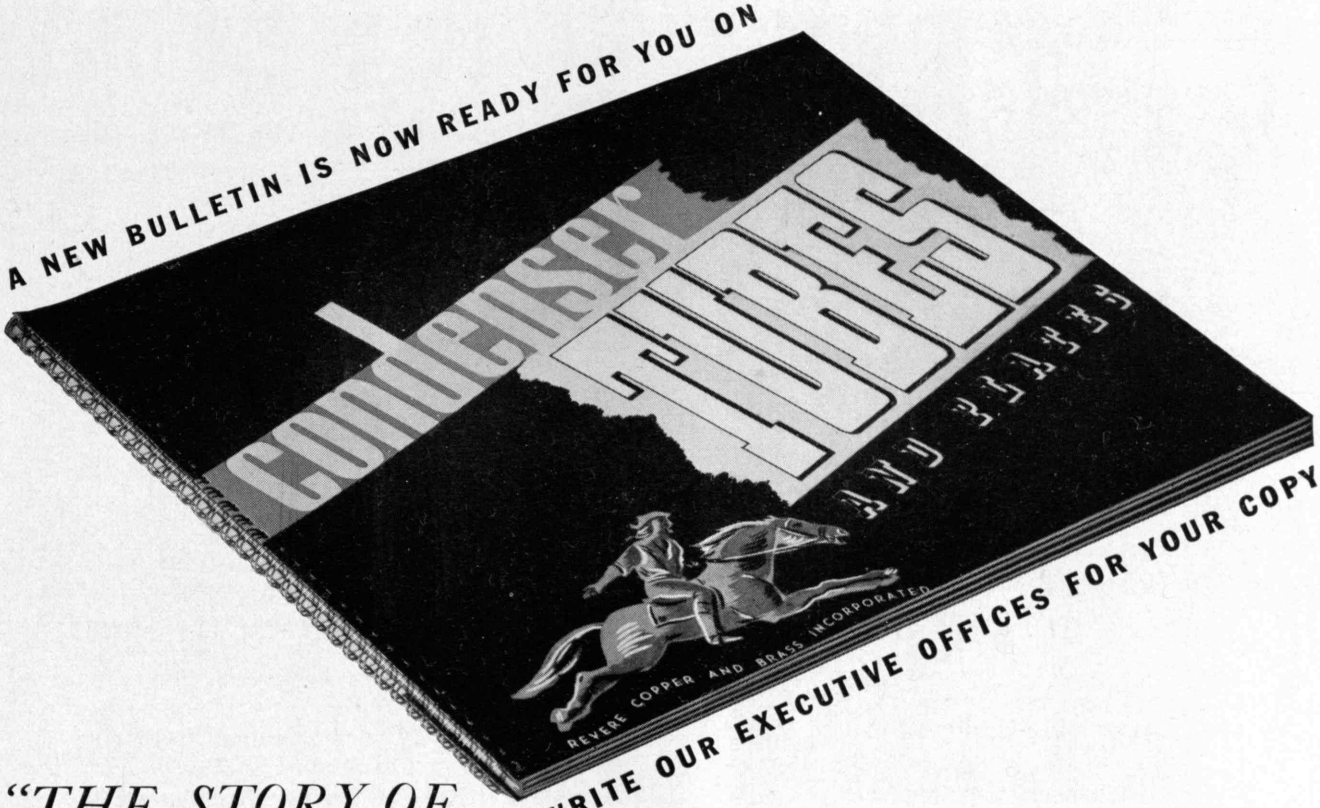
in the head. An automatic switching device illuminates each tube alternately, producing images that, when seen through a stereoscope viewer equipped with a rotating shutter, produce the effect of the third dimension. This method has many advantages for locating foreign bodies in the body and for diagnosis, but requires more equipment than the conventional x-ray photographic method in which the tube is displaced between photographs.

The versatility of the stereoscope is again demonstrated in its wide use in aerial surveying in which it makes possible very accurate plotting of large areas of territory in all dimensions. Viewed from a height of several thousand feet the earth appears to be flat, and except for very large objects, the effect of contour is missing. A single aerial photograph taken from such a height is flat and monotonous: All third-dimensional effects are reduced to a minimum and even towering mountain ranges are humbled. However, stereoscopic photographs taken from a plane flying a straight course at once reveal the earth in relief: Mountains lift their peaks again, valleys are revealed in their familiar form, and such small objects as houses and automobiles become solid shapes. The interval between stereoscopic photographs taken in the air is deliberately calculated to exaggerate the third-dimensional effect. Here again the observer is endowed with the vision of a giant. Skyscrapers appear to be twice as high as they are actually, the stature of trees increases, and every small contour in the land stands out in sharp relief, producing the general effect of a grotesque plastic model.

Stereoscopic photography proved of great value in the World War to spot trenches, dugouts, and artillery positions. A gun, so cleverly camouflaged that observers could not detect it from the air, became a conspicuous mound in a stereoscopic photograph. Even shrubbery carefully arranged to hide the searing telltale marks of the muzzle blast could be clearly seen. Many such photographs were made from altitudes of 20,000 feet for safety, yet the stereograms clearly revealed objects in relief that could not have been seen by any other method of observation.

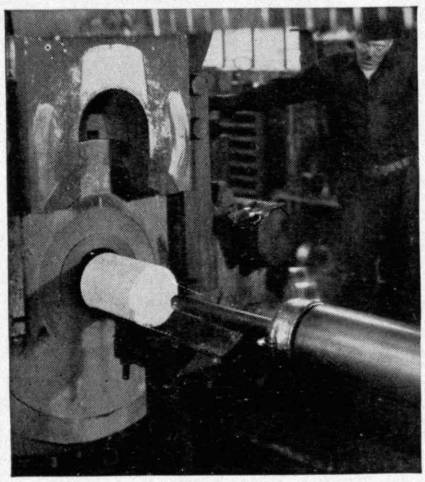
It is in the more peaceful task of land surveying, however, that the principles of the stereoscope are playing such an important part in aerial photography. Aside from its value for visual examination and precise measurement of aerial photographs, the stereoscopic principle makes it possible to draw maps from such photographs. Thirty-six years ago Dr. Carl Pulfrich, a German scientist, began experimenting with stereoscopy for the purpose of learning the underlying principles of the phenomenon of vision in the third dimension, and through his research he became one of the world's great authorities on the principle and application of the phenomenon. He developed a means of applying the stereoscopic method to mapping, and the highly accurate and effective methods of aerial and land stereoscopic surveying of today sprang from his pioneering achievements.

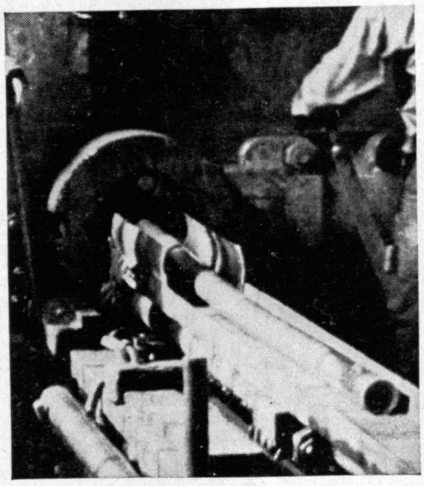
(*Continued on page 206*)

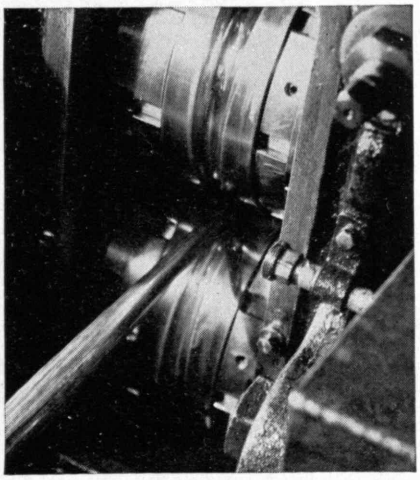


"THE STORY OF

REVERE CONDENSER TUBES"







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SEEING SOLID

(*Continued from page 204*)

Of the many extraordinary devices used in aerial mapping two outstanding examples must here suffice to indicate the striking advances in this fascinating field now known as photogrammetry. One device is the aerocartograph, a complex and very precise machine, which, given a pair of stereographic aerial photographs and the guidance of an operator, will plot a contour map of the land included in the photographs. All it requires to start its work is the elevation of one spot on the surface of the land. Another instrument now in wide use is the multiplex projector which produces the effect of a plastic model by projecting on a screen in complementary colors a pair of stereographic transparencies. The images on the screen are then viewed through spectacles of the same complementary colors, which exclude one view and transmit one for each eye, consequently producing the two views necessary for a model of the terrain.

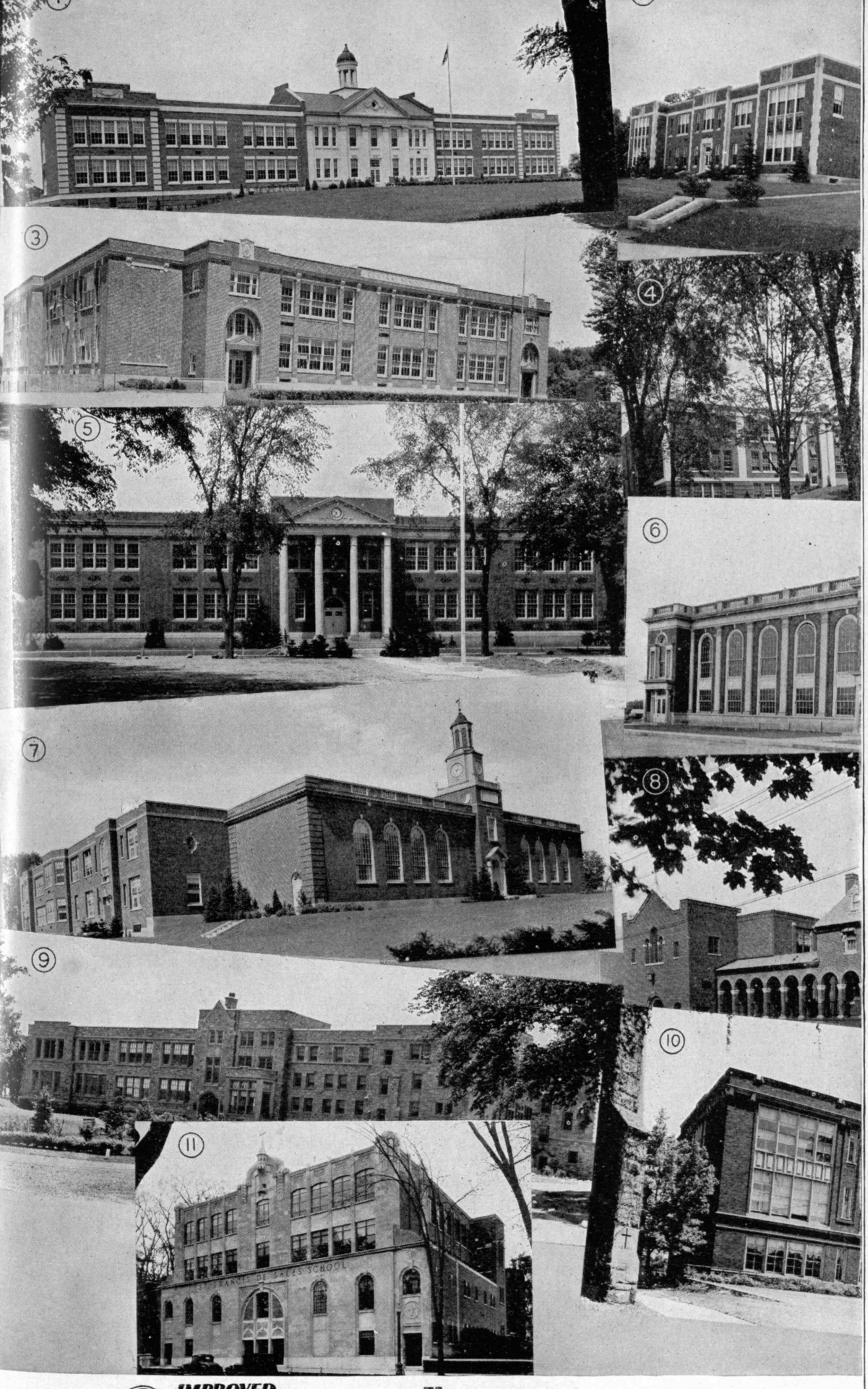
The surveyor also has at his disposal many other instruments, including special stereoscopes for instruction purposes. What has already been accomplished in precise surveying with the aid of stereoscopic principles and the constant improvement of devices for utilizing them indicates clearly the possibility of new applications in the future.

The quality of binocular vision is of great importance in many professions, especially in aviation, where accurate judgment plays a vital rôle in making safe landings and in maneuvering on airports, as well as in the air. Dependent upon his judgment of distance, taking into account shadows, relative size of objects, and color, the airplane pilot must have perfect binocular sense. All pilots now undergo special tests in which the stereoscopic principle is employed to determine this important requirement of normal vision.

It is quite probable that the automobile driver of the future may be required to take similar tests. No one knows to what degree faults of vision contribute to the staggering toll of deaths and injuries in automobile accidents. Certainly quality of vision — such as judgment of distance in approaching a dangerous grade crossing or traffic intersection and the distance or speed of the car ahead — is of primary importance in meeting the problems of traffic. An error of only a few inches may be disastrous in passing another car on a congested highway.

In industry, where vision is an important factor in efficiency and safety, the stereoscope is used for preëmployment examinations and manual-dexterity tests. Many cases of visual inefficiency are due to unskillful seeing, a condition which may quickly yield to stereoscopic exercises under the guidance of a skilled ophthalmologist.

OF all the applications of stereoscopic principles, perhaps the most exciting is the prospect of the third dimension in motion pictures. With sound and color an accomplished fact, the addition of relief in pictures would complete the illusion of reality. One of the problems involved is that each individual picture flashed on the screen must be viewed by (*Continued on page 208*)



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Albany, N. Y. — The picturesque wood range, which heated the little red school house, is a far cry from the efficient central heating systems in schools of today.

But despite vast improvements in heating methods, school officials have found that well-regulated, carefully balanced heating cannot safely be left to chance. The modern heating system must meet class-room temperature requirements day in and day out, it must be relatively free from trouble, and it must be simple to operate and, above all, economical.

This is the heating record of eleven upper New York State schools within 50 miles of Albany where heating needs are being met by the Webster Hylo System of Steam Heating.

These 11 schools, located in a section of New York State noted for its severe winters, have enjoyed economical heating service, comfortable indoor temperatures and minimum repair and maintenance bills with Webster Hylo Systems. Webster Control has been in operation in these schools for periods ranging between two and five years.

With the Webster Hylo System, heat loss is reduced to a minimum. If the outdoor temperature is 35 degrees, the operator adjusts the weights on the Webster Hylo Variator at 50 per cent. Direct radiators are then kept approximately half filled. During all periods of mild weather, the radiators are partially filled with steam. This throttling type of control is achieved with Webster's simple, rugged, conveniently located Variator valve.

School officials have come to value the service of the Webster Organization. Webster engineers study each installation carefully, make adjustments to meet particular conditions involved, and stay on the job until the installations are operating at maximum efficiency.

Eleven of the upper New York State schools heated by Webster Hylo System are illustrated here and can be identified by number as follows: (1) Central School, Greenville; (2) Central School, Westport; (3) Central School District No. 1, Averill Park; (4) Central School, Schoharie; (5) Lewis Rutherford Morris Central School, Morris; (6) Central District School, Broadalbin; (7) Central School District No. 1, West Winfield; (8) Blessed Sacrament School, Utica; (9) St. Agnes School, Loudonville; (10) Grade School No. 1, Mechanicsville; (11) St. Francis de Sales School, Utica.

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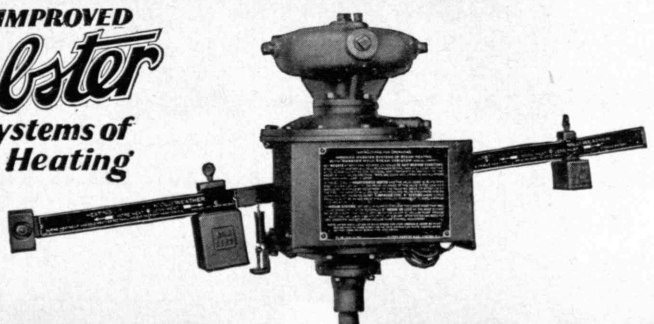

The Webster Hylo Steam Variator—a simple, rugged central control—regulates the heating of 11 New York State school buildings shown on this page. The Hylo Steam Variator (illustrated) automatically throttles a rugged motor-operated valve in the steam main.

SEEING SOLID

(*Continued from page 206*)

the eye corresponding to the lens of the stereoscopic camera through which it was taken. In simple, if the effect of relief is to be attained, the right eye must see only pictures taken by the right lens, and the other, only those pictures taken through the left lens. There are several methods of showing stereoscopic motion pictures, but nearly all require some form of auxiliary viewing device, such as various types of spectacles or shutter mechanisms. As long as 20 years ago a theater in New York was equipped with motor-driven synchronizing shutter devices for viewing stereoscopic motion pictures.

An interesting method of stereoscopic projection, however, which would require no viewing device has been studied by Dr. Herbert E. Ives of the Bell Telephone Laboratories. This method — not yet practical — involves the principles of the parallax stereogram developed by his father, Frederic E. Ives, some 30 years ago. The conventional stereoscopic pair of pictures is used, but instead of being mounted side by side, the pictures are divided into extremely narrow strips and arranged alternately. The effect of the third dimension is produced by looking at the parallax stereogram with the aid of an opaque line grating mounted a short distance in front of the picture.

The possibilities of the anaglyph method have been explored for many years. This system requires a pair of stereographic films, one dyed red and the other, green. Projected on the screen the image is blurred, but clarity of vision and the effect of relief are achieved when the spectator views the picture through spectacles with red and green lenses. Thus, the eye behind the red lens sees only that picture projected from the red film and the left eye, only images from the green film, and the mental merging of the two produces the third-dimensional effect. Because this method could not be used for pictures in natural colors, it has never been accepted as a satisfactory solution of the problem.

One of the most hopeful approaches to the use of motion-picture stereoscopy is the polarized-light method which was examined by earlier workers and is now the subject of reawakened interest because of the development of Polaroid, a relatively inexpensive material which polarizes light. The method, recently demonstrated, requires two motion-picture films taken by a stereoscopic camera with lenses eye-distance apart. In projection the films are placed one over the other and projected through Polaroid disks. The image from one film reaches the screen polarized vertically, while the other is polarized horizontally. Equipped with spectacles with lenses set at corresponding angles, the spectator sees the picture in the third dimension, an effect so startling in its reality that he feels he might reach out and touch the characters on the screen. A few years ago an enterprising New York theatrical producer introduced several stereoscopic effects in his show with the unexpected result that members of the audience injured themselves dodging balls that appeared to be thrown directly at them. An automobile or locomotive rushing toward an audience in a stereoscopic motion picture might well create panic the first (*Concluded on page 210*)

SEEING SOLID

(*Concluded from page 208*)

time it happened. However, in fairness to the possibilities of stereoscopic motion pictures, it should be understood that the third dimensional effects produced so far have usually been greatly exaggerated for purposes of showmanship.

If and when the stereoscopic effect is finally added to motion pictures, as many people believe it will be, the principle that found its first popular application in a form of entertainment and has since become so useful in many fields will join sound and color on the screen in a triumph of realistic entertainment undreamed of in its Victorian heyday.

At any rate Oliver Wendell Holmes was right: The stereoscope is not a toy.

THE EDUCATED WORKMAN

(*Concluded from page 198*)

the scheme of the business, but it will become a job performed by intelligent people, conscious of the technological and commercial implications of their work, *i.e.*, possessing some measure of real understanding of the consumers' needs to which the job caters and of the factors governing its discharge.

An observant person traveling through this country at random must be amazed at the number of educated people he meets in all walks of industrial and commercial occupations. The man wiping his windshield, the bellboy in the hotel, the waitress in the restaurant, the electrician doing a repair job, the operator of the long-distance bus, as well as the taxicab driver in the towns of the West are obviously people of education. Purely technical as their jobs seem, they are in fact performing them on a level unknown in Europe (and probably until recently in America itself). The responsibilities of the man are wider, his functions more varied, his job altogether different from what it was even a short time ago. Obviously there still exists a hard core of resistance to this process of intellectualization of human work, such as in the standardized methods of the Henry Ford type. However, this may soon prove a mere side line of development that will have to take care of itself.

If this effect of education on industrial labor continues, the United States is well on the way to solving one of the most vexing problems of an industrial society.

THE INSTITUTE GAZETTE

(*Continued from page 202*)

Prize Winners

FOR the second consecutive year students of the Institute's Department of Architecture have won first and third places in the annual prize awards of the Boston Society of Architects. Winners of the first and third prizes this year were Gilbert E. Hoffman and Harris A. Kemp, both graduate students. Second place was awarded to J. J. Amory of Harvard University. The subject of competition was a smoking lounge for an ocean liner. The competition was open to students of the schools of architecture of M.I.T., Harvard, and the Boston Architectural Club. Forty-four students competed.

Mr. Hoffman is a graduate of Carnegie Institute of Technology, having received the degree of bachelor of science in architecture last year. His home is in New Castle, Pa. Mr. Kemp received the degree of bachelor of science in architecture in 1934 and his master's degree in 1935, both from the University of Illinois. His home is in Kewanee, Ill.

Achievements in 1936

EACH year Science Service, the institution for the popularization of science, compiles and publishes a list of the outstanding accomplishments in science and engineering. In its review of progress in 1936 Science Service includes the following achievements of members of the M.I.T. staff:

¶ The United States Navy in coöperation with M.I.T. developed the Draper electromagnetic apparatus for recording of engines' and airplane parts' vibrations while in flight.

¶ Small unmanned balloons equipped with robot radio transmitting sets were used for automatic recording of upper-air weather information and cosmic-ray data in the field tests of Dr. Thomas Johnson, Bartol Research Foundation, and of a joint expedition of Harvard University and M.I.T. under the direction of Dr. K. O. Lange.

¶ Eclipse observations by the Harvard-M.I.T. expedition showed several new coronal lines and indicated to Dr. Donald H. Menzel of Harvard a close connection between high excitation in the chromosphere and the strength of the, as yet, unsolved coronal radiation. (*Concluded on page 214*)

PREPARATORY SCHOOLS FOR BOYS

THE INSTITUTE GAZETTE

(*Concluded from page 212*)

¶ A new method for determining age of rocks by their helium content was announced by Dr. William D. Urry.

¶ A mechanical calculating machine capable of solving nine simultaneous linear algebraic equations was completed at the M.I.T. Designed by Dr. John B. Wilbur, '26, the simultaneous calculator has wide uses in civil engineering, nuclear physics, genetics, and psychology.

¶ Detection of radium poisoning became more accurate through the application of a new type of screen-cathode quantum counter developed by Dr. Robley D. Evans and said to be 10 to 100 times more sensitive than older methods of detecting radium in the body.

¶ Five wavelengths comprise the portion of ultraviolet light curative of experimental rickets by irradiation, and of these the one which is most effective rarely reaches the earth in sunshine, Professor John W. M. Bunker and Dr. Robert S. Harris, '28, reported.

¶ Experiments with radio waves only six inches long, which travel along hollow tubes, were simultaneously announced by Dr. G. C. Southworth, Bell Telephone Laboratories, and Dr. W. L. Barrow, '29, of M.I.T.

¶ A small but powerful electromagnet which has produced 75,000 gauss was reported by Dr. Francis Bitter.

¶ A compact 1,000,000-volt electrostatic type generator was installed at Huntington Memorial Hospital, Boston, to produce radiation useful in cancer therapy.

¶ First complete x-ray analysis of the atomic arrangement of an amorphous substance (glass) was obtained by Professor Bertram Warren, '24.

¶ Quantitative treatment of convection in the interior of the earth was initiated by Dr. C. L. Pekeris, '29.

MAIL RETURNS

(*Concluded from page 178*)

little or no time for anything other than that particular phase of scientific endeavor which he has chosen to study.

An appreciation of art and literature, so far as the training he receives at the Institute is concerned, is almost impossible, and it is precisely the same appreciation which, as you put it, is what constitutes an education as differing from a mere training.

Consider the other professions — law and medicine. The student, after getting through prep school, spends three or four years in college, during which time he is obtaining a liberal education rather than a training, and the curriculum is not so severe that he does not have time to contact his fellows and develop in himself the ability to evaluate the good from the indifferent. He then, after this period of education, launches on a three- or four-year term of training in his chosen work. The very education which he has acquired, or presumably so, at college is exactly the thing which enables him to grasp the underlying thread of his chosen subject.

All of which says that to raise the profession of engineering and science to the accepted level of law and medicine, a more liberal education is an absolute requirement. I speak from experience . . . but in no way as a criticism of the Institute. In my opinion a liberal education is a real requirement toward proper absorption of an adequate specialized training, and the two cannot possibly be crammed into a period of four years.

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TECHNOLOGY MEN IN ACTION

CHECK LIST OF THE ACTIVITIES AND ACHIEVEMENTS OF M.I.T. ALUMNI, OFFICERS, AND STUDENTS

Professional Recognition: Elected

¶ Arthur W. Dean '92, chief engineer of the Massachusetts State Planning Board, to the position of a national director of the American Society of Civil Engineers.

¶ Andrey A. Potter '03, dean of engineering at Purdue University, to the presidency of the American Engineering Council, for another term.

¶ John C. Kinnear '07, general manager of the Nevada Consolidated Copper Corporation, to the presidency of the Nevada Mine Operators Association.

¶ Charles Camsell '09, deputy minister of the Department of Mines and Resources of Canada, to the position of vice-president of the Geological Society of America.

¶ Ralph E. Flanders, Corporation, to continue as a vice-president of the American Engineering Council at the same meeting at which Mr. Potter was reëlected president.

Awards and Mentions

¶ To Peter L. Bellaschi '26, section engineer in charge of transformer engineering for the Westinghouse Electric and Manufacturing Company, a certificate of honorable mention from the honorary society, Eta Kappa Nu. Mr. Bellaschi is well known for his pioneer work in lightning investigation, and in September he was one of three to receive the Westinghouse Award of Merit for his work in high-voltage research.

¶ To Eugene W. Boehne '28 of the Philadelphia switchgear plant of the General Electric Company, a certificate of honorable mention from the honorary society, Eta Kappa Nu. Mr. Boehne has specialized in the theory of traveling waves and in circuit-breaker design adding much to modern knowledge of protective devices.

¶ To Waldemar Lindgren, Professor Emeritus from the Department of Geology, the Wollaston Medal awarded by the Council of the Geological Society in England for his researches concerning the mineral structure of the earth and especially concerning the problems of metasomatism of contact ore deposits and the application of physical chemistry to ore deposits.

Speeches and Articles

¶ By Louis S. Morse '96, a radio address on "Art in Industrial Design," Station WORK, York, Pa., November 10, as a contribution of the York Art Club to National Art Week.

¶ By James R. Bancroft '09, President of the American Institute of Finance, a speech before the Apartment House Owners Association, Boston.

¶ By Erwin H. Schell '12, Head of the Department of Business and Engineering Administration, an article entitled "A Conversation with Presidents," *Nation's Business*, January. Professor Schell conceives it "an inescapable part of presidential responsibility to see that executive activity is maintained at a level above the collar line." As a means of doing this he advocates prospective standards with the attendant necessity of preparing a budget; a yearly model, forcing the search for new ideas; change of environment or responsibility.

¶ By Harry E. Kent '23, a speech before the New York section of the American Institute of Electrical Engineers on "Important Considerations in the Power Supply to Mercury Arc Rectifiers." This talk dealt with the problem of coördinating power and communication lines for the purpose of lessening the induced noise in telephone receivers.

Headliners

¶ Christopher J. Carven '84, upon his retirement in January as commissioner of public works in Boston after 52 years as a city employee. Mr. Carven told the Boston *Evening Transcript* reporter that he felt the greatest public works advance which was made during his career was the motorization of the department, for every minute lost in getting to trouble, such as a break in a water main, means additional loss of thousands of dollars.

¶ Walter H. Kilham '89, for a water-color exhibition held during January at Governor Dummer Academy in South Byfield, Mass. Mr. Kilham was the architect for the building in which his exhibit was hung.

¶ Nathan Hayward '97, upon his retirement on January 20 from the presidency of The Franklin Institute, a position which he has held since January 16, 1929. Mr. Hayward delivered his valedictory address from a studio five miles away from the lecture hall of The Franklin Institute and was visible to his audience by means of television. He remains a member of the board of managers of The Franklin Institute.

¶ Charles Edison '13 (whose appointment as assistant secretary of the Navy we noted in our January issue), upon his induction to office, January 18. Mr. Edison's first action was to turn his attention to overcoming obstacles in the operations of the Walsh-Healey Act.

¶ Donald W. Douglas '14, upon his selection as one of the 12 outstanding young men of the past year. This distinction was announced by Durward Howes, editor of "America's Young Men."

DEATHS

* *Mentioned in class notes.*

¶ George R. Shaw '71, January 14.

¶ F. E. Schubmehl '85 (Honorary Member), January 5. Dr. Schubmehl was medical director of the General Electric Company, Lynn, Mass.

¶ Frank Ingalls '86, November 21.

¶ Luther Dean '88, January 9.*

¶ Joseph B. White '89, January 6.*

¶ Samuel Flood '90, January 10.

¶ Homer Goodwin '91, January 22.*

¶ Peter F. Dolan '93, January 25.

¶ Prescott O. Clarke '94, November 18.

¶ John Gregory '95, January 18.*

¶ George Colburn '96, January 12.*

¶ Herman Hormel '96, January 5.* See 1895 class notes also.

¶ John H. House, Jr., '98, May.

¶ Sidney L. Cole '05, January 14.*

¶ Alfred W. Geist '06, January 1.

¶ Walter Hoover '07, December.*

¶ Alfred N. Smith '12, November 18.

¶ Nathaniel E. Brooks '14, January 23.*

¶ Ben V. Borella '15, June 22.

¶ Walter L. Clark '17, January 12.

¶ Frank J. Connors '22, January 2.

¶ George W. Sutterfield '32, January 15.

NEWS FROM THE CLUBS AND CLASSES

CLUB NOTES

Technology Club of Central Pennsylvania

The Club held a meeting on January 21 at the University Club in Harrisburg with 32 members and guests present. L. S. Morse '96 presided, and our guest speaker was B. Alden Thresher '20 from the Institute. Professor Thresher is the new director of admissions at M.I.T. and, if our estimates are of any value, he is a very good man for the job. He is not only well versed in the principles, policies, and operations of the Institute, but is able to present them to a group such as ours with great vigor and clarity. Some of our local schoolmen, who were guests, were very favorably impressed with his exposition of the work and aims of the Institute and particularly with the new admissions plans.

After Professor Thresher's talk there was a general discussion period during which we found out more about what is going on at school. With the close of the formal meeting, a goodly number retired to the grillroom for refreshments and more personal discussions.

Your Secretary was gratified by the turnout of Alumni and glad to see some of our men who had not been to a meeting in many a long year. Among the Alumni present were the following: L. S. Morse '96, President, C. A. Bryan '03, F. F. Gilmore, 3d, '33, J. R. McCaa '32, F. A. Robbins, Jr., '02, H. R. Spaans '30, P. E. Tillson '06, E. A. Weimer '98, L. O. Buckner '21, R. E. Irwin '09, E. J. Mink '22, A. J. Seiler '32, B. J. Stevens '23, R. H. Turner '25, A. E. Golden '35, Nathan C. Ayer '36, J. P. Connelly '28, B. E. James '32, E. T. P. Neubauer '33, C. M. Peterson '36, L. R. St. Onge '26, and A. E. Beitzell '28. — MAURICE W. DAVIDSON '26, *Secretary*, Bell Telephone Company, 210 Pine Street, Harrisburg, Pa.

M.I.T. Club of East Tennessee

A dinner meeting of the Club was held at the Farragut Hotel, Knoxville, on Tuesday, January 19. Our guest and speaker was B. Alden Thresher '20, Director of Admissions, who gave a most interesting talk on recent changes and developments at Technology, including the recent changes in requirements for admission. Representatives from several local secondary schools were present and a most interesting discussion followed Professor Thresher's talk.

There are about 68 Technology Alumni residing in East Tennessee and of this number the following were present: from Chattanooga, Erwin Harsch '20, T. D. Lebby, Jr., '17, and I. L. Tyler '23; from Kingsport, R. F. Bailey '35, H. H. Imray, Jr., '32, Winfield Partridge, Jr., '33, A. T. Regan '33, R. W. Smith '33, J. B. Stevens, Jr., '33, and T. M. Taylor '22; from Norris, F. A. W. Davis '15, W. K. Johnson '27, and H. A. Sargent '26; from Rockwood, our Honorary President, George E. Sylvester '87; and from Knoxville, T. B. Appel, Jr., '29, E. S. Birkenwald '23, R. T. Colburn '23, R. E. Crawford '28, H. P. Emerson '28, R. E. Hickman '36, A. G. Kern, Jr., '34, J. C. Nowell, Jr., '23, George P. Palo '28, T. B. Parker '11, A. S. Peet '09, E. B. Peters '16, J. F. Pierce '22, George Slover '21, D. W. Tambert '22, and O. P. Young '20. Also present was J. G. Callan, Jr., '34, from Cambridge, Mass. — ALBERT S. PEET '09, *Secretary*, Knoxville Glove Company, P. O. Box 138, Knoxville, Tenn.

Technology Club of Southern California

A dinner meeting was held on the evening of January 20 at the University Club of Los Angeles. President K. C. Kingsley '23 called the meeting to order and requested everyone to rise in turn and give his name and class; there were 37 members present. Vice-president W. H. Robinson, Jr., '24, noted that there were more members of the Class of 1924 present than there were from any other Class, whatever that proves. The speaker of the evening was Pete Clark '25, sound engineer with the Radio Corporation of America. Mr. Clark proceeded to give a very interesting and educational talk entitled "Sound in Motion Pictures." His presentation of this most highly technical subject was so simple and lucid that almost anyone could understand what he was talking about. Those who could not understand at least were entertained by the humorous manner in which he presented his subject, so your Secretary is certain that his talk was not a total loss to anyone. Personally, your Secretary feels that sound in motion pictures is a very simple proposition as explained by Mr. Clark: The sound goes in the microphone, goes round and round, and comes out the loud speaker. That's all there is to it. Mr. Clark also demonstrated some sort of gadget that makes sound waves visible, which your Secretary thought was pretty hot stuff.

The attendance at this meeting is nothing to be proud of; we sincerely hope the next meeting will be much better attended. — CHARLES H. TOLL, JR., '23, *Secretary*, Western Pipe and Steel Company, 5717 Santa Fe Avenue, Los Angeles, Calif.

Technology Club of South Florida

On January 14 an organization meeting of Technology men of Southern Florida was held in Miami with 16 men present. The meeting was a success and we started a program that anticipates the support of each of the 50-odd Alumni in South Florida. Several who could not be present wrote us of their interest in the maintenance of an association to forward the interests of M.I.T. and the local sons and daughters. Elizabeth F. Fisher '95, Professor Emeritus of Geology and Geography of Wellesley College, wrote: "May your plans for the formation of a Technology club of Miami mature and bring good-fellowship and prosperity to all. My loyalty to the Institute will include the Miami club. I shall hope to know you all and, if it seems desirable to enroll women graduates, I would be proud to be a member." Splendid encouragement! Naturally, we are all counting on Miss Fisher's participation in our organization.

The oldest class was represented by E. C. Cole '81. His letter read to the meeting was deeply appreciated: "In reference to the M.I.T. program will say I am an old man in feeble health and could not take any active work in your proposed plan. I shall, however, be glad to see any of the M.I.T. men at my home at any time — 'Treasure Trove,' 2485 South Bay Shore Drive, Miami." Surely this letter should be an inspiration to all of us.

M. B. Crum '25 wrote in from Vero Beach to say that his "one-hoss" packing house was demanding all his attention for the moment and that he was with us in spirit and wanted to be considered as one with us. — B. S. Clayton '08 sent a message from Belle Glade that he could not join us in the first meeting but promised to be present at future meetings. — Oscar A. Saunders '24, 'way off in Sebring, was another unable to be present. — William D. Sargent '87 wrote that he would attend our first meeting, but, unfortunately, he was not able to be present. We will look forward to his active membership. — Myron L. Williams '32 had a conflicting date with the Reserve Officers Association and phoned his regrets. — Lock Davidson '08 of Melbourne wrote: "I am heartily in accord with the movement and would like to be counted in on it."

These letters and expressions from many others indicate the interest behind the formation of the Club. Everyone present wanted to see an active association inaugurated with these objectives in mind: (1) Encourage good-fellowship among men of M.I.T.; (2) take our rightful place in the councils of the Alumni in matters affecting the Institute, its students, and graduates; (3) through organization to make our influence felt in furthering the interests of the engineering profession in South Florida and the state as a whole; (4) be interested and prepared to give assistance and guidance to young men coming from M.I.T.; (5) similarly to encourage possible candidates for admis-

sion to M.I.T.; (6) lend our collective influence in civic affairs, for example, city planning, home development, and so on; (7) coöperate with the engineering societies, alumni associations of other schools, and other professional groups interested in the activities of engineers; (8) function as a welcoming body to visiting engineers, business and professional men of the Institute, and Alumni, and sponsor the public contacts of these visitors.

In the preliminary discussion between Thayer '23, Brown '30, and Burrus '22, regarding an alumni association, no thought was given to the selection of men to undertake the responsibility of carrying on the active work. It was decided that a nominating committee named at the dinner meeting would assume this responsibility. This committee — Bernard '22, Junkins '16, and Read '23 — contrary to the wishes of the individuals involved, nominated the following: Ray C. Burrus '22, President; B. Howard Brown '30, Vice-president; Clarence P. Thayer '23, Secretary-treasurer. These nominations were accepted and approved. While the officers feel there are other Alumni better qualified to assume leadership, they agree to accept the responsibility until a near date when others may be selected. — CLARENCE P. THAYER '23, *Secretary*, 1760 Northwest 41st Street, Miami, Fla.

M.I.T. Club of Northern New Jersey

Dr. Compton and Professor C. E. Locke '96, Secretary of the Alumni Association, have accepted our invitation to be present at the evening meeting which concludes the Club's social activities for the present season. This gathering, the annual banquet and election of officers, has been set for Wednesday, April 7, at the Newark Athletic Club.

The program committee promises the biggest event in the Club's history, full details of which will be sent by mail to all Alumni in the district. Those who have recently moved to Northern New Jersey are requested to send their addresses to the Assistant Secretary in order to receive notices of the Club's activities. — CAROLE A. CLARKE '21, *Secretary*, 10 University Avenue, Chatham, N. J. FREEMAN B. HUDSON, JR., '34, *Assistant Secretary*, Colgate-Palmolive Peet Company, 105 Hudson Street, Jersey City, N. J.

Technology Club of Rochester

Dr. Kenneth Mees, Vice-president in charge of research of the Eastman Kodak Company, addressed the Club informally on December 1. His subject, "Some Stories of Ancient Egypt," dealt primarily with the period of 3,500 to 2,500 years B.C. He explained the union of upper and lower Egypt, illustrating his descriptions of the people and their customs with slides made from reproductions of ancient Egyptian art. The story of the construction of some of the pyramids was as fascinating as the construction of present-day engineering feats. Another interesting point brought out was that one of the very first universities founded in Egypt was devoted to the study of science. Over 40 members of the Club were present and enjoyed to the utmost this witty and sparkling presentation of life several millenniums ago.

On December 6 the executive committee, the scholarship committee, and several high school principals from Rochester met with Professor Thresher '20, the new Director of Admissions. A lively discussion took place in which Professor Thresher told of the new admissions requirements, particularly, stabilized enrollment. He pointed out that last year approximately 650 entering freshmen were chosen from nearly 1,000 applications. The obvious advantages are better students and more opportunity for long-time planning in facilities for handling the students. Among those present were Mr. Hawley of Monroe High School, Dr. Holzwarth of West High School, Mr. West of Charlotte High School, Mr. Eddy of Vocational High School, Mr. White of Edison Tech, and Mr. Brice of John Marshall High School. These gentlemen, together with the other principals, have been instrumental in helping many Rochester boys prepare themselves for Technology and they have greatly assisted in making the Rochester Regional Scholarship so successful.

The annual winter alumni prom was held Saturday evening, January 30, at the Rochester University Club. Invitations were sent to all Rochester undergraduates who were home for the midterm recess, as well as to the Club members. Joseph A. Parks, Jr., '28, was chairman of the committee on arrangements and was assisted by Gerould T. Lane '13, Oliver L. Angevine, Jr., '36, Richard S. Morse '33, Andrew Langdon '22, and E. Philip Kron '34. The decorations were arranged by Mrs. Lane, Mrs. William W. Vicinus, and Mrs. Langdon. — E. PHILIP KRON '34, *Secretary*, Building 23, Kodak Park, Rochester, N. Y.

Technology Club of Central Florida

On December 16 the Club held a get-together meeting at Rubin's Restaurant in Tampa. During a short business meeting it was decided that a small group of members of the Club shall actively seek out suitable students for the Institute from the student bodies of the various schools in this territory. The following members were present: Harvey M. Mansfield '83, J. J. R. Bristow '14, Julian K. Ferguson '15, Franklin O. Adams '07, Laurence P. Geer '15, Willard B. Newell '17, J. Allen Weaver '23, A. C. Nichols '08, and M. R. McKinley '19. — MALCOLM R. MCKINLEY '19, *Secretary*, Tampa Electric Company, Tampa, Fla.

M.I.T. Club of the Mohawk Valley

A dinner meeting of the members of the Club was held at the Fort Schuyler Club in Utica on the evening of December 9. Edwin A. Gruppe '22 presided, and we had the pleasure of listening to Professor B. Alden Thresher's very interesting address. Professor Thresher '20, who is now the director of admissions, brought Tech to us, and we were deeply interested in his description of present-day Technology. We had as our guests Professors E. S. Babcock and R. W. Thompson, principals of the local high schools, and Professor R. W. Johnson, principal of the Utica Country Day School.

Members of the Club present were: E. A. Gruppe '22, C. B. Williams '04, W. I. Griffin '07, L. A. Stewart '18, E. L. Etherington '20, A. F. Wildes '30, R. K. Phillips '30, T. Parker, J. T. Biehle '26, R. B. McCann '18, and O. M. Davis '01. — WHEATON I. GRIFFIN '07, *Secretary*, 22 Catharine Street, Utica, N. Y.

Washington Society of the M.I.T.

A group from the Society was invited by our Honorary Secretary, Proctor L. Dougherty '97, to attend a special luncheon on Saturday, January 9, at the Cosmos Club. The purpose of this meeting was to welcome B. Alden Thresher '20, Director of Admissions at M.I.T. A number of the high school principals were invited also to hear Professor Thresher's discussion of the new admissions policies at the Institute and to discuss matters which interested them. Mr. Dougherty opened the meeting with an introduction of guests, including: A. R. Hoxton, Principal of Episcopal High School, Alexandria, Va.; F. C. Daniel, Principal of McKinley Technical High School, Washington, D.C.; Elmer S. Newton, Principal of Western High School, Washington; L. G. Hoover, Principal of Central High School, Washington; Norman J. Nelson, Principal of Woodrow Wilson High School, Washington; Albert E. Rogers, Principal of Friends' School, Washington. Mr. Lucas of St. Albans was unable to appear because of the prevalence of influenza in the school.

In spite of Mrs. Tyler's illness, requiring her removal to the hospital, Dr. Tyler '84, managed to put in an appearance shortly after the meeting started and, as the 1889 Director of Admissions, introduced Professor Thresher, the most recent Director of Admissions.

Professor Thresher emphasized the tremendous influence of Dr. Compton's leadership, mentioned the new developments in tying theory to practice, particularly in the Marine Transportation Course involving a year at sea; in the first-year Architectural Course, where the students build a house; and in applied physics. He discussed the "crossovers" now used to integrate the activities of the various departments and mentioned the emphasis on humanities and the development of student life. He outlined details of the new policies in selection and admission of students, involving stabilizing of enrollment, emphasis on general all-round qualifications, and evaluation of the probability of ultimate success in life of the prospective student. Among other things, he outlined the various scholar-

ship and loan funds available at the Institute. — The volume and tenor of the discussion following the talk indicated the very real value of this contact.

The following M.I.T. men were in attendance: A. M. Holcombe '04, F. W. Swanton '90, L. H. Tripp '06, G. W. Stone '89, P. L. Dougherty '97, H. W. Tyler '84, B. A. Thresher '20, F. A. Hunnewell '97, L. W. Conant '21, J. D. Fitch '24, J. W. Clary '96, W. K. MacMahon '22. — JOHN D. FITCH '24, *Secretary*, 35 Montgomery Avenue, Kensington, Md.

CLASS NOTES

1873

We note with regret the passing of Philip D. Borden, who died on December 24 at his home, 669 Rock Street, Fall River, Mass. Phil Borden, for more than 30 years, was city engineer of his home city and had been retired for the past 20 years; he observed his 86th birthday anniversary the day before his death. He belonged to a family prominent in the affairs of the city. During his term of office the development of the city of Fall River was rapid, and great credit has been given him for his unusual good judgment and honesty in the layout and construction of new developments. Equipped with the substantial foundation of a good engineering education, his ability and temperament were such as to enable him to make the most of his opportunities. Quiet, capable, studious, interested in his work, he was liked by all his associates.

He was a member of King Philip Lodge, Association of Free and Accepted Masons, Royal Arch Chapter and Knights Templars Commandery and was senior member of the Fall River Royal and Select Masters; he was also a member of the Congregational Church and the Fall River Historical Society. Surviving are his widow, Abbie Lincoln Borden, and a daughter, Mrs. Ernest R. Adams of Newton Highlands, Mass. — GEORGE M. TOMPSON, *Secretary*, 8 Whittemore Terrace, Wakefield, Mass.

1883

John Eppendorff sends his contribution to the "50 years ago" series: "After graduating in 1883, a year's experience with Professor Lanza as assistant in his beam testing laboratory convinced me that teaching and instruction were not my forte, although inducements were made by the Institute for me to continue in its employ. The next two years found me a draughtsman in various New York architects' offices and doing special clay and plaster modeling for Professor Ware at Columbia. It was not until the fall of 1885 in Buffalo, where I had been sent by Prentice Treadwell to finish some decorative work he was engaged upon, that I realized this was the type of work I was most interested in. So until 1909 I kept at it, designing, draughting, and painting — sometimes my own master, again on a salary — enjoying the creative part: its form and color and the successful solution of difficult problems. But at the age of 47, with a daughter about ready for college and only a tiny suspicion of a bank account, I realized the future might be dark indeed if I were not able to lay aside more each year. Then suddenly out of the clear sky came an offer from some very good friends of mine to become assistant manager of the well-known and long-established department store of Flint and Kent [Buffalo]. It was somewhat of a wrench at first, but my old love for mathematics at Tech has stood me in good stead and the security coming from my association, in an executive position, with such a reliable, conservative firm has indeed kept me feeling young and fit. I still maintain an interest in the arts, and a small room on my second floor houses all my old architectural volumes and, as well, leaves room for a work bench where I occasionally try my hand at carpentering, carving, modeling, and so on."

Our President, Horace Gale, has recovered from an attack of acute indigestion with complications which kept him in the house for some weeks. — George Capen and Mrs. Capen have been established for a number of months at the very attractive and comfortable home for elderly members of the Masonic Orders at Shrewsbury, Mass. George will be glad to hear from any classmates: address, The Masonic Hospital, Shrewsbury. Trouble which developed a year or more ago prevents George from taking active exercise on his feet, but otherwise his health is good and his spirits are exuberant as always. Drop him a line; it will be appreciated. — Julien Vose is next on the list of contributors, and our request is out for Jim Hutchings to follow. — HARVEY S. CHASE, *Secretary*, Bridge Street, South Hamilton, Mass.

1887

The Secretary has been favored, since the last writing, with responses from a number of classmates, some of whom we see so infrequently that a letter is really something reminiscent as well as interesting. Granger Whitney writes from Williamsburg, Mich.: "I am planning to attend the reunion next summer. I note what you say in regard to Nickels, Mosman, and Norris. I knew Phil Mosman very well, as he lived in Beverly. I have been in more or less close touch with him since graduation. In a letter from Norris that I had some time ago he said that he was planning to attend the 50th reunion. Two of our classmates of whom I was very fond have passed along in the last year. One was Charlie Proctor. He lived in Peabody, Mass., when he went to the Institute, and I saw a good deal of him during the summer. We played some tennis and used to ride around the country on the old-fashioned high bicycles. It was always a pleasure to meet him at class reunions, at which he was a pretty constant attendant. After he made a killing, selling a tannery down in Pennsylvania, he seemed to devote himself to playing games. This made another contact in later life. He was quite a curler and curled with The Country Club in Brookline, Mass. I met him twice at bonspiels at Montreal and Quebec and went out to The Country Club to curl with him one time when I was in Boston.

"The other classmate was Archie McColl. He turned up at our reunion at Chebacco Island. Nobody seemed to know him, and he explained his presence by saying that he took some special courses with the Class. Thomas had his name and sent him invitations to reunions. He said that at last if that crowd thought enough of him to keep in touch with him all these years he was going down to get acquainted. He proved a right nice fellow. As he was in the iron and steel business, Carney got quite well acquainted with him, and I had more or less correspondence with him. He was also a curler and belonged to a curling club in Nova Scotia. I guess that we three were the only curlers in '87. If there are any more that play the roaring game, I would like to meet them. It is getting pretty cold in this country, and we are planning to move down to Detroit as soon as I can finish packing the last apples. Last winter I took a very interesting trip. I took a steamboat at Halifax and cruised down through the British West Indies, stopping at Puerto Rico, Montserrat, Guadeloupe, Martinique, Barbados, Trinidad, and ended at Demerara, British Guiana. Fresh limes and rum were plentiful and cheap, and the trip was very enjoyable. I will be glad to hear from you at any time. Please give my love to all local classmates."

Arthur Nickels wrote that he was leaving for St. Petersburg, Fla., via the Merchants and Miners' S.S. *Alleghany*, sailing from Boston on January 5. The Secretary met him at the ship and spent a very pleasant hour in his company before sailing time. — Carter, another member of the '87 "Travel Bureau" outfit, took a brief moment before jumping the South American boat to send the following: "Sorry I couldn't get around with any literary response to yours of November 13. You may take an item from the inclosed, if you think it would be of any interest. Hope you are prospering and that we will all last until June." The clipping Carter inclosed is from the Springfield, Mass., *Union:* "Mr. and Mrs. N. P. Ames Carter of Grove Avenue, Chicopee Falls, who are Chicopee Falls's Number One world travelers, will leave Saturday for a tour of South America, to be gone three months, exploring Brazil and Argentina. They will conclude their trip with a visit to the Falkland Islands and the famous island of San Fernandos, traditionally called Robinson Crusoe's Island. The cruise will take the Chicopee couple through the Strait of Magellan around the southernmost tip of South America, opening up a new field of travel to them. They will move up the Pacific seaboard of South America and return to Southern Atlantic waters through the Panama Canal, where they will leave the cruise ship at Havana and return to the United States. They will embark Saturday on the S.S. *Southern Prince*."

1887 Continued

It was extremely gratifying that our esteemed classmate, Richard E. Schmidt, Chicago public official that he is, could divest himself of official cares sufficiently to send us the following very welcome message: "If I were a gentleman of leisure, I would have responded to your pathetic appeal of November 17 in the four or five days intervening between its date of receipt and the dead line you set, but inasmuch as I am a day laborer, I neglected to take the opportunity you offered to get into print. Green and Sturges have told me that they are planning to attend the 50th, and I told them to count on me too, but it does not surprise me that they didn't remember that, so if I survive, I will be on hand at the first clang of the starting bell, or what have you."

Henry Hill wrote: "Was pleased to hear from Sturges and to learn that he will be with us next June. The Patti incident (referred to in Sturges' letter) reminds me of the time when, as a Roman soldier, I supported Edwin Booth in 'Julius Caesar' at the Boston Museum. Those were happy days."

A letter from Gelett Burgess, whom most of us have not had the pleasure of meeting since the memorable 20th at Chebacco Island in 1907, has just been received, to the Secretary's great delight. Gelett says: "As you have heard, I returned to New York in July, 1935, after an 11 years' stay abroad. I knew for six years that I ought to get back, but somehow got rooted and with a good deal of illness had to stay on till the busted dollar fairly kicked me out of France. Since then I have been enjoying the excitement of New York to the full. The mental atmosphere is so different and so inspiring that I regret my years of expatriation. I published a detective or murder novel called 'Two O'Clock Courage' in 1935 and it made a fair hit; perhaps you have read it. It struck a new note for that literature, I think. Last year I published another novel, a rural romance called 'Too Good Looking,' and I am hoping to sell the movie rights soon. I had an article last May in the *Reader's Digest*, called 'Invisible Eating' which caused a good deal of talk, and in the current (February) *Cosmopolitan* you will find my article called 'Look Eleven Years Younger.' This I am now expanding into a book for spring publication, probably with the same title. I am preparing radio talks also. Perhaps this outline will do temporarily, with a mention of my article on 'Efficiency in Fiction: Dudism Vs. Nudism in the Arts,' which appeared in The Review two years ago [May, 1935, page 307]. It explains how my theories of fiction writing have entirely changed. I have thrown away the old technique and adopted a reporting style adapted to the mood of the machine age, with a view to greater efficiency in the fiction machine.

"I hope to be able to attend the 50th reunion and shall make a great effort to be present. I always feel, though, that I have wandered away from the fields of science and am more or less of an outcast in the Class of '87. (The Secretary takes violent issue with the writer over the last suggestion.) I still think, however, that my education at Tech was of the utmost value in teaching me to think, and it kept me out of Harvard, anyway, and prevented my being enslaved by the worship of the classics."

Lonsdale Green again favors with a communication, which the Secretary is pleased to present in part: "George Otis Draper's 'Venturing Betimes' came about a month ago, and I cannot recall when I have enjoyed a book more." (Right here the Secretary would like to announce that he has a number of additional copies which the author has kindly donated for such of the Class as have not already received one. A copy awaits any who may desire it.) Now to resume: ". . . A few of his experiences have been mine. I spent six months in Europe in 1929, omitting Spain, Greece, Russia, and Norway. Again, I have seen a lot of the West. In 1923 and 1924 I did the structural engineering for a firm of contractors that rehabilitated the Denver and Rio Grande Railroad to the extent of some four or five millions. I spent some time in Salt Lake City and there changed my opinions about the Mormons. . . . It was in July, 1924, when my work was finished there, but I had to wait to meet some others coming from the East, and, as they were about ten days late, I had nothing to do but wait in Salt Lake City. I spent half that time on the porch of the public library, reading all the histories of the Mormons that they had. Naturally I went and saw a lot of other places, including the Tabernacle, where I saw and heard the pin drop, to exploit their fine acoustics.

"After I met my Eastern date I did not have to be in Chicago until September 1, so I managed to tie up with a fellow with a car, and we toured everything from Grand Canyon to Glacier, with time to spare. In all, the trip in that Hupmobile back to Chicago was 5,269 miles — not much compared with Draper's travels, but at that I am sure that I saw a few spots that he missed. But to come back to his book: He certainly covers a lot of ground. While his personality is all through the book, as it should be as it is more or less a biography, he tells the interesting matters and leaves out other personalities. His chapter on liquor was written when hope for repeal was brightening. He should have had my experience. In the Billings Hospital in Chicago I am their prize exhibit as the man whose life was saved by alcohol. 'Alcohol' is the word they use; I called it Kentucky Bourbon. In less than a month I drank four quarts of 16-year-old Kentucky Bourbon and I was amazed at the price they charged me for it. They billed it to me at the price they paid the government for it during the days of repeal, just two dollars a quart!

"I was in the hospital for five months with two ailments and fell from 200 pounds to 160. Nothing would stay on my stomach but the water I sucked from ice cubes. Once at 7 P.M. I feigned sleep and overheard the day nurse tell the oncoming night nurse that if I passed out in the night, as she thought I might, she would phone her not to come to duty the next day. That night four doctors gave me a transfusion and a good stiff highball. The high-ball stayed on my stomach, and I had three of them the next day. Later on one of the doctors brought me a book to glance over, written by about 30 or more eminent doctors, entitled 'Alcohol and Its Use in Medicine.' — I seldom see Dick Schmidt for he has a busy job and his girl secretary keeps people at bay, for Dick is troubled by too many nuts that insist on bringing their troubles to him instead of to his deputies. Both he and Sol (Sturges) always mention the 50th reunion. If I really reviewed Draper's book I would say that he has a wonderful and valuable sense of humor. My youngest son, who is past the age of 40, is reading it now. My eldest son is succeeding in New York City and my second son is a banker in Minneapolis."

New addresses are as follows: William C. Cushing, The Delmar-Morris, Chelten Avenue at Morris Street, Philadelphia, Pa.; Warrington G. Lawrence, 419 Chestnut Street, Roselle, N. J.; Edward Lovering, Pepperell Manufacturing Company, 160 State Street, Boston, Mass.; George L. Norris, Vanadium Corporation of America, Graybar Building, 420 Lexington Avenue, New York, N. Y.; William D. Sargent, 3756 Pine Tree Drive, Miami Beach, Fla.; John W. Stearns, 2940 Central Avenue, Indianapolis, Ind.; William B. Blake, 2836 Sixth Avenue, North, St. Petersburg, Fla.; Walter G. Whitmore, 11 Winthrop Terrace, East Orange, N. J. — NATHANIEL T. VERY, *Secretary*, 1 Hamilton Street, Salem, Mass.

1888

On a visit to New York City just before Christmas I had the pleasure of calling on Mrs. Helen Van Kleeck Devens, widow of Dick Devens — one of the most popular as well as the most athletic members of our Class. As you will remember Dick played regular full back on our championship eleven in 1887, second base on the last Institute nine in 1885, and with Billy Dearborn carried off a large share of the honors at indoor athletic meets during our years at Technology. Mrs. Devens lives on upper Fifth Avenue opposite Central Park where she lived when her husband passed on, more than eight years ago. She seems very youthful to have sons 24 and 20 years of age, as she has. The elder, Richard Devens, Jr., is an officer on one of the Mediterranean steamship lines, and his mother was planing to take a cruise with him this winter which should be more interesting than usual on account of the Spanish war situation. The younger son, Henry Fairbanks Devens, 2d, is connected with one of the largest mercantile firms in New York City. Mrs. Devens was very anxious to learn all the details of her husband's career at Technology as he was too modest to tell her about them. So your Secretary tried to tell her how Dick plunged through the line or ran around the end with the ball tucked under his right arm,

1888 Continued

and his left arm and fingers extended to meet the face of any opposing tackler; how he played baseball like a Lou Gehrig; about his high jumping and fence vaulting, his hurdling and shot-putting; also about when he wore feminine attire during his initiation to Hammer and Tongs; and last but not least, how he sang after prolonged urging, on special occasions, in his rich tenor voice, that famous old ballad entitled, "McSorley's Most Beautiful Twins." Mrs. Devens told of being suddenly left with boys of 12 and 16 years to be educated during the depression while she kept her budget balanced — which she accomplished by methods that would do credit to an experienced businessman. Perhaps some of her business ability is due to the fact that she is a Van Kleeck and traces her ancestry back to the time when Manhattan Island was called New Amsterdam.

On reading the class notes of 1887 in the January Review about their plans to celebrate their 50th next June, the statement that a crowd headed by my old friend Solomon Sturges was coming on from Chicago for that great event leads me to remember and announce to the Class of '88 that our 50th comes only one year after that of '87, and it hence behooves each and every one of us to start thinking and planning about where we are going and what we are going to do during the week-end of the latter part of May or early part of June, 1938. Your Secretary urges all of you to write him your ideas on this matter so that the committee which will be appointed next June will have an abundance of suggestions to go over and investigate, resulting in selection of the best place and the best time suited to the majority of us. We will be looking for your letters.

Our classmate, Ralph Sweetland, Secretary of the New England Insurance Exchange, stated in his report, read at the annual meeting of that organization held in Boston recently, that as a result of improvement in fire protection facilities, fire insurance rates were reduced in six Massachusetts and two Connecticut municipalities during the past year.

It becomes our sad duty to record the death of Luther Dean on January 9 at Faulkner Hospital, Jamaica Plain, Mass. Although he had been in failing health for some time he did not give in to actual illness until after the death of his wife on September 23. On Christmas day a consultation of doctors decided on a minor operation. After this he improved considerably, but unexpected complications arose which proved fatal after a short while. The funeral was held at his late residence, 19 Prospect Street, Taunton, Mass. Dean was a son of David and Dordana Macomber Dean and was born in East Taunton. He was graduated from Taunton High School in 1884 and entered the Institute with the Class of '88 remaining about two years, when he was obliged to leave on account of ill health. He was engaged for 25 years in various parts of the country on engineering work, his largest job being as engineer with Stone and Webster Engineering Corporation in Dallas, Texas, in charge of the electric road from Dallas to Sherman, Texas. This was 100 miles in length and was completed in 21 months, a record at that time. At one time Dean was city engineer of Taunton. In 1919 he started as a broker in investment securities in Taunton and continued in that line till his death. In 1891 he married Jessie L. Bragg. He was a member of the American Society of Civil Engineers. He was quiet and unassuming in his personal manner, esteemed, and highly regarded by his friends who knew him well and recognized his capabilities.

Your Secretary made his annual visit to Annapolis, Md., for Christmas with his grandchildren and incidentally played golf on the Officers Golf Course at the Naval Academy for about three weeks, witnessed basket-ball games and swimming contests, movies every Saturday night, and chapel Sundays like all the rest of the midshipmen. There were few idle moments in Annapolis for yours truly. — BERTRAND R. T. COLLINS, *Secretary*, 72 Oxford Road, Newton Centre, Mass.

1889

Orrok has been created an honorary member of the American Society of Mechanical Engineers, the third man from M.I.T. to receive this honor — John R. Freeman '76 and Calvin Rice '90 having preceded him. At the annual meeting on December 1 the following citation was delivered by Mr. Lionel S. Marks: "Mr. President: It will shortly be my privilege to present to you Mr. George Alexander Orrok, who is to receive from your hands one of the most distinguished honors which this Society can confer. For over 40 years George Orrok has been a practicing engineer, working largely in the field of power, and for 30 years was mechanical and consulting engineer with the New York Edison Company. During this time he has been an increasingly important figure in this field and has built up an outstanding reputation on the basis of his professional work and of his numerous important contributions to engineering literature. His contributions have been outstanding not only for their pragmatical value to the engineer but also because they have been illumined by an unusual sense of the continuity of engineering development. He has tied up the past with the present.

"We are indebted to him even more for the enthusiasm with which he has stimulated the technical and scientific work of this Society, most notably in connection with the elaborate researches on the properties of steam, which, after 15 years, have resulted in an international steam table. But most of all we honor him for his personal qualities. There are hosts of young men who have sought his advice and assistance and who speak of him affectionately as 'Uncle George.' There are innumerable older men who have found him always ready and willing to give them the benefit of his wide experience. And a specialty of his has been his general adoption of European engineers. When traveling in Europe one can be fairly sure that each engineer with whom one converses will say, sooner or later. 'And how is that nice Mr. Orrok?' It seems almost as if he had a permanent station at the foot of the Statue of Liberty from which he took charge of visiting engineers and introduced them to the mechanical wonders of this country. In addition to being our unofficial ambassador, he has also been for many years a roving lecturer at many of the principal engineering schools of the East and has given a sense of background and an outlook to a multitude of students. It is therefore with the greatest pleasure that I present to you Mr. George Alexander Orrok."

The Secretary has also received a printed copy of a really fascinating address before the American Society of Mechanical Engineers by Orrok entitled "Engineering Recollections," which shows that George has the makings of a novelist as well as an engineer; anyway it is more interesting than most novels. Required reading.

The Secretary has received word of the death of Joseph B. White at Hanson, Mass., on January 6. Following is a notice which appeared in the daily papers: "Mr. White retired from his duties in the office of the chief clerk at the veterans' administration department in Washington, D. C., some time ago because of ill-health, after 18 years of service. With his wife he went to Florida from Washington because of his failing health, but when no improvement was noticed he returned to his sister's home here in December on his 70th birthday anniversary. The deceased was a resident of Whitman (Mass.) for a number of years, where he was prominently associated in the real estate business and held in high esteem by a large circle of friends.

"Delegations representing Puritan Lodge, Association of Free and Accepted Masons of Whitman; Old Colony Commandery, Knights Templars, and John Cutler Lodge, Association of Free and Accepted Masons, of Abington, and Apollo Temple, Mystic Shrine, of Boston, with which he had long been affiliated, were included among the large number who gathered to pay their last respects. He was the son of Joseph and Sarah E. White, a graduate of Bryant and Stratton Business College and a member of the 1889 Class of M.I.T. Living for a while in Bridgewater and Whitman, he went to Washington in 1918 after developing the Blake property in Whitman. Although due for retirement in December from his duties in the veterans' administration department, his ill health made it necessary for him to stop his duties sooner. During the past 10 years he had devoted considerable time to the history of his native town and had compiled in book form the history of every house in town up to 1935. He had made many interesting town maps and had compiled a record of each grave in Hanson cemeteries with the headstone inscriptions."

The Secretary has received news of the deaths of Edward R. Blagden on September 14, 1935, and Henry G. Young on

1889 Continued

December 5, but has no particulars. — WALTER H. KILHAM, *Secretary*, 126 Newbury Street, Boston, Mass.

1891

Your Secretary is preparing his notes for the next issue of The Review on the same day that he and other classmates attend the funeral of Homer Goodwin, a life-long friend of many of us here in Boston. Homer passed on at his home, 410 Memorial Drive, Cambridge, on Friday, January 22, after a short illness. His only son went to Tech, Class of 1920, and died some two years ago. He is survived by his wife, his mother and a sister, who live in Allston, and his daughter-in-law, Mrs. Harold Goodwin, who is a teacher in New York City. There were no grandchildren.

Homer was born in Boston and went to the Roxbury High School before going to Tech. In 1897 he bought a seat on the Boston Stock Exchange and held this throughout his lifetime. He formed the firm of Goodwin and Thorndike at that time, which firm was dissolved in 1905 and a new firm formed, Goodwin and Ratchesky, which lasted two years. Until 1929 Homer was in business for himself and at that time he formed the firm of Homer Goodwin and Company with his son as a partner. This lasted until shortly before his death. For a number of years he spent his summers at the Vesper Country Club near Lowell, Mass., where he had one of the Club camps on the riverbank, with the golf course at his front door.

Harry Young invited your Secretary to a dinner given at the Algonquin Club in Boston on January 12 in honor of Professor O. M. W. Sprague of the Harvard Business School, who left February 27 to teach economics in Paris. Several well-known men paid tribute to Professor Sprague, including Charles Francis Adams and Dr. Daniel Marsh, President of Boston University. There were five '91 men at our table, including Bowen, Vaillant, and Damon.

Among the recent pilgrims to Cohasset are Carl and Mrs. Read, Harry and Mrs. Cole with their daughter and two grandchildren, Gorham and Mrs. Dana, George and Mrs. Holmes and daughter, Charlie Clark, and Francis Holmes. Barney is in his usual good spirits, cannot get out as easily this time of year, but goes to church quite regularly. Mrs. Capen had a nervous upset after her father's death and at this writing is at the Ring Sanatorium at Arlington.

WELL: The 45th Reunion Book is out and we hope you like it. We have additional copies for all who want them. Gorham Dana helped to get the material together and have it printed, and if we have said what we shouldn't or omitted saying what we should, please take the will for the deed.

Letter just received from Eli Bird: "Gorham has sent me by tonight's mail the Class Book and it looks well — it, with the others, I keep close by to look at from time to time. Time speeds us on our way, and now 1937 looms before us and may we, as a class, weather another year without any loss in members: To live on and on, if health and good luck attend us, is desirable, and, as I look back at the fine bunch that were with us last June, it seems to me that optimism seemed to prevail to a large extent. Unforeseen things cannot be reckoned with to be sure, the nasty little germs which come to bother us we sometimes cannot dodge, but with clear minds and ready attention to details, escapement often is possible. To go back to the book — as I wrote Mrs. Aiken, we will always think of Charlie as having left us with a memory of him that few, if any, in the Class can match. Each gathering to come will bring back to our minds that he has gone, but his love for his classmates will never die; he was the soul of greatness of heart — that is my tribute to him."

Another letter just received from Hanington in Denver, Colo.: "I have read with great interest the class doings in the January Review and am still waiting for that new list of men. The one I have is very old with many notations in Barney's handwriting. A week or so ago I was going over some old papers and came across three pictures of the Corps of Cadets taken in 1887 which called to mind many an hour of drilling in the old gym. I saw quite a good deal of F. de Pinto that first year and up to a few years ago I corresponded with him. I am wondering if he is still alive? Do you recall old Professor Otis and his story of the mouse who wanted to learn to swim? That is about all the German I can remember.

"Since my son was graduated from Harvard in 1923 I have not been in Boston, but I hope to get there some day in the future. To have your only son taken from you is a blow that, at my age, is awfully hard to live down. My work here is very interesting, which keeps me going. I have always regretted that so few of '91 men stop off in Denver. We have much of interest here and in the neighborhood which I would be very glad to expound to any of my classmates. Kauffman, the only '91 man besides myself, I never see and did not know him while in Tech."

Letter from Ed Smith to Barney written in December: "We are trying to reflect the promise of better times in our 1937 calendar. It may savor of the 'horse and buggy' days, but there are worse. You and I survived them, and I am not so sure that we are not better for the experience — surely we are no worse. We have seen some wonderful transitions. We have been privileged to look upon some marvelous developments. The instrumentalities that serve us are more and more amazing, and our appetite for new sensations is constantly being whetted. I sometimes wonder if that appetite may not become jaded. One of my sisters has lost her sense of taste. I wonder if we may not lose our sense of taste for real values, for spiritual values in our mad Marathon for sensuous satisfaction. Well, anyway, the immediate future looks pretty good, so why sermonize. In the spirit of the times we have tried to make our calendar colorful and glamorous. But for you Barney I wish substantial joys and satisfaction. . . ."

Will Lawrence wrote to Barney after his return from a trip South: "We took a four-thousand-mile motor trip South and spent our Christmas in the bright sunshine with flowers and orange trees all about us."

Letter from Robert Ball in England to Barney: "I send a cordial Christmas greeting to you. It comes from your lonely classmate on the other side of the water. How I wish it were possible for me to grab my hat and stick and saunter forth for a good old 'crack' with those who can remember the old times and can talk about them such as you can. One feels hopelessly isolated, but there it is, we cannot alter it. We will not have either of our children with us this Christmas, for my son, as you know, is in Kenya, and my daughter is too busy to come home, but she gets some days later instead. It is one of the penalties of living on a small island which cannot support the population, for sons and daughters have to seek their careers in distant parts of the Empire and, while we have our daughter close at hand, our son is away from our fireside year after year. In this respect you are better off, for though you may be separated by immense distances there is land between you and yours, and somehow this makes a difference, though it may be more psychological than actual.

"Our thoughts have been centered lately upon your presidential election and also upon our own change of monarch. For England to have had three kings in one year is an unprecedented event. Our poker-playing friends would perhaps call it a royal flush. Did you ever play poker, Barney? I was taught it one night in Boston. It was an expensive evening to a poor Tech student, and since then I look the other way when a game is proposed." — HENRY A. FISKE, *Secretary*, Grinnell Company, Inc., 260 West Exchange Street, Providence, R. I. BARNARD CAPEN, *Assistant Secretary*, Early Convalescent Home, Cohasset, Mass.

1893

Among the recent gifts to Technology was one presented by the family of the late Henry A. Morss. This will be used for the Institute's undergraduate sailing activities. Mr. Morss, an ardent devotee of yachting, was a member of the original committee which had charge of the design of the Technology sailing dinghies.

As these notes go to press, our Secretary and Mrs. Fay are en route for home after a two months' Mediterranean cruise and we will expect to hear from Fred an account of his trip. — Mrs. Mabel Sawyer, wife of Charles W. Sawyer, died at her home, 41 Humphreys Street, Dorchester, on November 30 after an illness of several months. Mrs. Sawyer, a descendant of the earliest New England colonists, was Mabel Louise Warren. Her father was a prominent musician and composer of religious music. Mrs. Sawyer was one of the first women to be graduated from M.I.T., studying there between

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1890 and 1894, and later was founder of the Technology Women's Association, at one time being president of the organization. She is survived by her husband, four children, and three grandchildren.

The following changes of address have been received: Robert D. Reynolds to 983 Memorial Drive, Cambridge, Mass., and Frank D. Richardson to 3670 Latimore Road, Shaker Heights, Ohio. — FREDERIC H. FAY, *Secretary*, 11 Beacon Street, Boston, Mass. GEORGE B. GLIDDEN, *Assistant Secretary*, 551 Tremont Street, Boston, Mass.

1895

Sad to relate, word was received of the passing of John Herbert Gregory, I, professor of civil and sanitary engineering at Johns Hopkins University, Baltimore, Md. John died suddenly on Monday night January 18, and was buried from his home, 204 Lambeth Road, Baltimore, on Thursday, the 21st. Further report will be given in the next issue of The Review.

Some of the members of the Class may remember Herman Hormel, who started at Technology with the Class of '95 but later was affiliated with '96. Herman Hormel died January 5 at the Faulkner Hospital, Boston. He was a native of Boston and was always interested in its public affairs. He was a staunch Republican from his boyhood and eventually became a leader in the politics of his home city and state. He held the office of surveyor of customs at the Port of Boston under appointments by Presidents Harding and Coolidge, but left the government service in 1932. He studied law, was admitted to practice in 1926, and maintained law offices on Beacon Street, Boston. Mrs. Hormel, one son, and two daughters survive him.

Al Zapf of Orange, Calif., reports he still is "in the running" and invites all his friends to sojourn in California and enjoy its climate. — LUTHER K. YODER, *Secretary*, 69 Pleasant Street, Ayer, Mass. JOHN H. GARDINER, *Assistant Secretary*, Graybar Electric Company, 420 Lexington Avenue, New York, N. Y.

1896

Lou Morse, who is with the York Ice Machinery Corporation in York, Pa., went on the air on Station WORK, York, Pa., on November 10, during National Art Week. His talk was on "Art in Industrial Design" and it was sponsored by the York Art Club. — The Fullers have sent full reports of their progress. They were in Los Angeles at election time and found the water front deserted on account of the strike. Their voyage across the Pacific was peaceful and comparatively uneventful until they reached a point north of Guam, where they ran into a typhoon, and the boat was obliged to heave to for five hours. They arrived in Manila on Thanksgiving Day and were deeply impressed with the changes in 27 years that had elapsed since their previous visit. They spent considerable time in the Philippines taking railroad and automobile trips from Manila as their starting point, followed by a sea cruise of five days, going 500 miles south of Manila, and making various stops along the way. They were due to sail on December 9 for Saïgon in Indo-China.

Herman Hormel died at the Faulkner Hospital, Boston, on January 5. He was with us from 1891 to 1895, taking Course V in chemistry, and he was a member of the Sigma Alpha Epsilon Fraternity. He was born October 15, 1873, in South Boston, the son of Ernst and Albertina C. Bencks Hormel. He married on June 30, 1909, Elizabeth E. Kerrigan, and the children are: Rhoda E., June 25, 1910; Lillian E., June 28, 1911; Herman, Jr., July 31, 1913. Hormel had a distinct flair for political life. Prior to 1899 he engaged in various secretarial work, and was connected with Republican politics. After 1899 he was an official in political life. He was for five years secretary of the Republican City Committee of Boston and was president of the Republican City Committee from 1909 to 1921. From 1899 to 1916 he was on the Republican State Committee, and in 1917–1918 he was in the Massachusetts State Senate. He was a 32d degree Mason and a Knight Templar. He had served in various offices, including that of chairman of the election laws and metropolitan affairs committees of the State Senate. He held the office of surveyor of customs of the Port of Boston from 1921 to 1932, being successively appointed for four-year terms by Presidents Harding, Coolidge, and Hoover. In his earlier life he was associated with his father in the grocery business, and it was really not until about 1905 that he took an active part in politics and later became the leading figure in Boston's Ward 14 Republican circles. He studied law, was admitted to practice in 1926, and maintained law offices on Beacon Street. He was married to Miss Kerrigan of South Boston who had been his private secretary. He was a member of the Boston City Club and the German-American Singing Society. His death occurred after an illness of several weeks, and his condition had been most critical for some time prior to his decease. His life appears to have been that of politics, and he never seemed to show any real interest in Technology, and as far as the Secretaries are aware he never attended any of the class affairs.

George Clement Colburn died in Newton on January 12. He was with us only in our freshman year, and he was a member of the Theta Xi Fraternity. He was born March 24, 1874, in Newton, the son of George D. and Anna Frances Clement Colburn. His wife was Elizabeth B. Pike of Salisbury, Mass. The children were Dwight, born May 17, 1903, and George C., Jr., born February 9, 1907. Colburn went into the insurance business and was prominent in that work in Newton and in the community life of that city for many years. He was a charter member of the Newton Kiwanis Club and its former president, and also a director of the Newton Y.M.C.A. He was a Mason. Though he had not been in the best of health for several years, the end came suddenly from a heart attack while walking near his home, 61 Charlesbank Road, in Newton. — CHARLES E. LOCKE, *Secretary*, Room 8–109, M.I.T., Cambridge, Mass. JOHN A. ROCKWELL, *Assistant Secretary*, 24 Garden Street, Cambridge, Mass.

1901

Judging from some rather brief notes which we have been fortunate in securing through Lammot duPont relative to the very interesting trip to Africa for big game which was made by R. R. M. Carpenter, we imagine that if less than one tenth of the things which might have happened to him had not been properly synchronized, he would no longer be vice-president of E. I. duPont de Nemours and Company. The expedition was made in behalf of the Academy of Natural Sciences of Philadelphia, its principal object being to secure a group of Cape buffaloes for a habitat group. To accomplish this the animals had first to be secured, then carefully skinned, the bones collected and packed, photographs of the location made, and trees, plants, bushes, grasses, and soil collected and boxed so that the whole could be finally reassembled in this country just as it actually looked in the original environment.

The expedition really started from London and we quote as follows from Carpenter's own notes regarding his adventures: "We made the journey from London to Nairobi by plane via the Imperial Airways route which takes you to Brindisi, Athens, a 12-hour flight across the Mediterranean to Alexandria, then to Cairo and through the Sudan to Juba, Entebbe, and then to Nairobi, six days in all. We had a most comfortable trip both ways, but two of the planes we traveled in crashed after we got out, one in the middle of the Mediterranean. Our *safari* included a hunting car and two lorries to carry equipment; our personnel, two white hunters, four gun bearers, three native skinners, four tent boys or servants, a cook, five porters, and one native mechanic. Local natives were picked up from time to time from the friendly tribes in the hunting country.

"Our first camp was in the lower Masai country near the Tanganyika border. There are very few natives in this part of the country due to the tsetse fly. The Masai live on blood and milk, and goats and cattle are necessary. A few savages are seen, but they are mostly honey hunters and run if they see you first. This honey hunting is interesting. While we conversed with them through our own natives, I noticed that every once in a while one of them would give a plaintive whistle. Upon inquiry and watching them I found out the secret. A small bird, called the honey bird, would answer them. The bird would approach quite near, then whistle and fly off. The natives would follow, answering the whistle from time to time. The bird would return to them and apparently lead them on. Then it stopped and flew round a circle, locating for them the honey tree. A native always leaves a small amount of honey for the bird. These natives are armed only with spears and bows and

1901 Continued

poisoned arrows. The animals found in the lower Masai are the lion, leopard, some elephants, a few buffaloes, the eland, wildebeest, cheetah, wart hog, most of the antelope family, the ostrich, and the giraffe.

"Our next camp was located about 300 miles from here in the Embu country where buffaloes are plentiful. Natives are also plentiful, and a shot will bring half a dozen down on you, hoping for meat. If unusually hungry, they get their knives out, cut off a hunk, and eat it raw. By most big-game hunters the buffalo is considered the most dangerous of all big game. Some give this credit to the elephant, others, the rhino, a few to the lion, but I think I will pin this honor on the buffalo because I have been charged three times by buffaloes and never by any of the others, although two or three rhinoes would love to have charged us could they have located us. Our second white hunter was killed by an elephant, so you can take your choice.

"I am perfectly willing to own that the first time I was charged by buffaloes I was good and scared and never expected to get out of it. Between 40 and 50 lined up in front of us at 50 yards and charged at full speed, making a noise like a train of cars. We knelt down with our rifles ready, although practically useless under these conditions, and waited, for the nearest tree was 200 yards off. At 25 yards they veered off slightly, passing us, and, stopping, wheeled around toward us again. A big bull seemed to be in the lead and I gave him both barrels, which turned him off, and fortunately the rest followed him. Two more shots discouraged him for keeps. The next day we were charged again in heavy brush. This time we just jumped out and yelled, which fortunately turned them around us, some passing within five yards. . . .

"Our third stop was in the rhino country, 100 miles north, where we killed two rhinoes and took some pictures. Our fourth stop was in the Northern Frontier, that piece of desert lying between Meru and the Ethiopian border. Special permission to cross into this frontier country must be secured from the British commissioner. He gives you permission if he considers that you are able to take care of yourselves, and the government will not be put to the expense of sending in a rescue party. We were told that formerly before they closed the border they were put to considerable expense, sending in soldiers to bring out parties in trouble. About the only game found here are the oryx, gerenuk, a few lions, a stray herd of elephants, Grant's gazelle, the zebra, and giraffe. We were up there principally to get a gerenuk head for the Heads and Horns collection in New York, and make some movies at the water hole. Our last camp was in the Bamboo forest at 9,000 feet elevation, for a specimen of the Colobus monkey. This beautiful monkey has hair almost a foot long, but the country is too thick for the taking of good movies."

From these brief and very modest notes there could very easily be developed a complete scenario full of the keenest thrills and with such human-interest features added as to satisfy the most exacting movie fan. In any event, the airplane trip from London to Nairobi must have been most exciting without any of the rest of the adventures, and Carpenter's nonchalant mention of the crashing of two of the planes after he got off evidences just one of the opportunities for making a brilliant but very sudden demise. Another spot was the charge of the herd of buffaloes, and it would require a Cecil De Mille to do justice to that in the movies. The honey bird, however, did furnish a somewhat milder note, and we were glad to learn that the natives always leave a small amount of honey for the bird.

Ever since I read years ago one of Jules Verne's stories of an expedition into Africa, I always wanted to experience such a series of thrills, and I cannot think of any more interesting method of spending an extended vacation. Possibly at some future reunion we can induce Carpenter to amplify his account of his exciting experiences.

As a matter of fact, Carpenter is not the only classmate to do some extensive traveling, and to Allan Rowe's past comments relative to Fred Clapp's worldwide peregrinations there may now be added a brief description of his latest adventure in Afghanistan. This information was obtained from a newspaper account dated December 30 and sent in by Phil Moore from Chicago, to the effect that the Inland Exploration Company had virtually clinched a 75-year concession for 270,000 square miles of virgin territory in Afghanistan said to be the greatest untapped oil reserve in the world. The article went on to say that Ogden L. Mills, former Secretary of the Treasury, is one of the backers of the Inland Company and that other chief backers are the Seaboard Oil Company and Case, Pomeroy and Company. The concession was stated to be for exploration as well as exploitation, and it will take years to lay out the territory and test for oil. The concession was said to have been negotiated with the Afghan government by Charles C. Hart, former American Minister to Albania and Persia, and Frederick G. Clapp, American technical expert. The concession requires that the concession company must be entirely American, and it is stated that a staff of engineers will be sent to explore the field and plan development work as soon as the Afghan National Assembly formally ratifies the agreement. Furthermore, if and when oil in commercial quantity is determined, 1,000 miles of pipe line will be required to carry the oil across Persia to Baluchistan. After the exploring is completed, therefore, there would appear to be one mighty good contract for some good pipe concern, and outside of that we have an idea that Fred Clapp would not have much trouble in finding a number of volunteers from the Class of 1901 to join him in his future adventures. — ROGER W. WIGHT, *Secretary*, 700 Main Street, Hartford, Conn. WILLARD W. DOW, *Assistant Secretary*, 20 Beacon Street, Boston, Mass.

1902

Although these notes are written only a few days after the *Retort* went forth about our 35th reunion next June, interesting replies are beginning to come in. Everything points to a good turnout on that occasion, with several classmates on hand who have not been at any of the previous class gatherings. Make up your mind now that you are coming and if you want to write to any old crony to get him into line, just let us know and we will supply that chap's address.

Mendenhall writes from Salt Lake City that he is coming if he can possibly arrange to do so. He adds: "Charley McCarthy is second in command of the 38th Infantry and is stationed at Fort Douglas, this city. I only recently learned that he was there and immediately got in touch with him, and Mac and I had a three-hour gabfest. Mac hasn't changed much since 1902. He still wears the same mustache and pleasant smile. He had some very interesting experiences to tell of his 15 years spent in mining in Nevada and the past 20 years in the Army. I heard recently that he is going to the Philippines in April. — I met Paul Hansen last summer when he was on his way to the Pacific Coast and I called on him when I was in Chicago about a month ago. We had a very interesting two-hour visit. Paul is very modest, but I have heard from those in positions to know that he is just about 'tops' in the sewage disposal field." — Mendenhall is added to our increasing list of grandfathers, as his son, Bayard, Jr., has a two-year-old daughter. Well, grandpa, make it in June if you possibly can; we all want to see you again.

McCarthy is not the only colonel in the Class, as Judson (Lieutenant Colonel Howard C. Judson, United States Marine Corps, retired) writes from Miami Beach, Fla., as follows: "The *Retort*, sent to me via Headquarters, United States Marine Corps at Washington, has just reached me. I am wondering how you fellows found out where I am; I would like to know, as the person concerned rates a strong recommendation for the G-2 section in case we have another war. After leaving the Institute I worked in business a while, was assistant superintendent of the Deane Steam Pump Company at Holyoke, Mass., but couldn't stand the pressure of civil life. I served several years in the Revenue-Cutter Service and in 1907 switched to the Marine Corps in the hope of seeing more excitement; I did! Made the trip around the world with the Fleet; chased outlaws in the Northern Philippines; got in on the pirate roundups in the South, the Chinese Revolution, the Asado Revolution in Cuba in 1912, watchful waiting at Guantánamo in 1913, capture of Vera Cruz in 1914, occupation and pacification of Haiti in 1915 and the same thing in Santo Domingo in 1916; commanded troops in the field in France in 1917 and 1918, Northern district of Haiti in 1919 (and got denounced as a butcher of the 'Nation' and investigated by the Senate any number of times); was engineer officer at Quantico, Va.,

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and built a lot of quarters and Smedley Butler's stadium; commanded troops at Managua in 1928; and then loafed a few years (as all field officers do) until I had 30 years service. As there were no more wars or occupations in sight, I requested retirement, and the President approved. Now I have nothing to do but fish and hunt and do odd jobs for the missus. During all these years I remember encountering but one classmate; that was at Cavite in 1908, so I am wondering how you found out my whereabouts." Judson is coming to the reunion next June.

Phil Whitney is another name added to our roll of grandfathers — a daughter, Sandra, having been born last November to his daughter, Alpa (Mrs. Bernard H. Shelton of Wellesley Farms, Mass.). Whitney has been obliged to resign his position as professor of graphics in the School of Fine Arts at the University of Pennsylvania on account of impaired eyesight. All of us who remember our "descrip" will agree that teaching such subjects would be a strain on the eyes. Whitney is living at Moylan, Pa., and building up his health after severe illness.

Chandler Hovey was chosen commodore of the Eastern Yacht Club, Marblehead, at the last annual meeting. In reporting his election, the yachting editor of the Boston *Globe* commented: "The election of Commodore Hovey brings to the senior office of the Eastern a racing man of the highest order and a scion of one of New England's oldest yachting families. He is at present owner of the Class J sloop, *Weetamoe*, so another of these first-class racing cutters succeeds the famous *Yankee* as flagship of the Eastern. Hovey's early yachting was done under Beverly Yacht Club colors in Buzzards Bay, but 10 years ago he transferred his allegiance to Marblehead and he shortly became a figure of national and international yachting importance." It may be remembered that Hovey was the head of the syndicate that put the *Yankee* into the field the year of the last America's Cup races where she was a very close contender for the honor of opposing the *Endeavour*. Later, after G. B. Lambert (whom Hovey succeeds as commodore) bought the *Yankee* and took her to England for a season's sport, Hovey bought the *Weetamoe*.

Paul Weeks writes that he is planning to be on hand next June. He is with the Caterpillar Tractor Company, as he has been for some years, but over a year ago was transferred from the Washington office to the plant at Peoria, Ill. — Adrian Sawyer, after getting the *Retort* into press, left Boston for a trip to California. He planned to see several classmates on this trip, and we hope to learn more of his doings in time for the next issue of The Review. — FREDERICK H. HUNTER, *Secretary*, Box 11, West Roxbury, Mass. BURTON G. PHILBRICK, *Assistant Secretary*, 246 Stuart Street, Boston, Mass.

1905

Elmer W. Wiggins, V, writes: "The reports of my death were slightly exaggerated," so we can write a resurrection instead of an obituary. But let Wig tell it himself: "I was flying alone with my wife, December 8, to Miami, Fla. Had to stop in Raleigh on account of bad weather. Had felt mean all day as I had foolishly bowled the night before and I am not supposed to do that. So I had a bad night at the hotel and a bad heart attack the next morning luckily — in fact, if the doctor had not arrived just as he did, guess I would have passed out. But it is hard to kill us old hard guys, I guess. They took me to the hospital and would not let me lift a hand or move or eat (except through my veins and a little liquid diet) for three days, but after the 12th day, they let me come back by plane — on a stretcher — and I have been in bed ever since until the last few days when I have been able to be wheeled out to the sun parlor every day, gradually sitting up more and more and taking a few more steps every day, and within a week I should be out again. They tell me if I will take it easy, I will be as well as ever, so I guess I had better obey orders, for I have a lot I want to do. . . .

"I have been getting up to Amherst occasionally this last year or two as I have a son there — a junior. And I see Coey frequently. He has a fine boy there on the football and baseball team. . . . Noticed in The Review that 1905 had a get-together a while ago. Please do not leave me off the list as I want to see you all again some of these days. Hope all is going well with you. Don't you ever get to Providence, Norwood, or Barton anytime? You will find me at one of these places. . . ." Wig's address is 87 Columbia Avenue (Edgewood Station), Providence, R. I.

Clarence E. Gage, II, should be elected a second assistant secretary since his wanderings of the past year, plus his accounts of them, have given us good copy. He has recently taken residence in St. Petersburg, Fla., as owner of the Inezda Apartments, located at 635 12th Avenue, Northeast, and would be glad to see all his old classmates, but let's let him do his own advertising: "Suffice it to say a six months' vacation after 30 years of work was enough and I had all the loafing I wanted. So we beat it back here, August 2, and are now catering to the general public (if they have the money for a winter vacation in the Sunshine City); rates $300 and up ($750.50).

"Sometimes I wonder what I would answer people who question what an M.I.T. graduate is doing in a seasonal apartment-house business. Let me tell you, however, that I find a use for about everything I learned (except calculus) at M.I.T. and lots since, here in this work. In fact, in some ways I feel that the engineering training puts me ahead of people here who haven't had it. Well, enough of that unless you can get me some free advertising (and business) in the next issue. We will be here until May and will then head for Indiana. We didn't see our two children at all last summer. So there won't be any Old Lyme for me in 1937, though I know I will miss it." Wentworth, Boggs, Lovejoy, and other winter tourists take notice.

Through Bert Files, I, we have been permitted to browse through one of the most complete life histories of an '05 man ever written. Also is included a very interesting description of the climatic and topographical excellencies of the state of Washington. Course I men in particular will remember Howard Physeck, who left at the end of the sophomore year to enter business. Let's start from that point: "When I first came West in 1904 I started in the lumber business and stayed in it as everything from common laborer — my first job — to sales manager of a large mill in Bellingham. The cost of production in all sawmills became of interest about 1910–1911 and as it was an intricate proposition involving some mathematical reasoning, it appealed to me, and I gradually worked into the accounting end, and was auditor of a large national lumber company, for ten years and later for a very large furniture factory in Tacoma.

"I was able to command a fairly good wage in the days from 1920 to 1932, running into the $6,000 class, which may look small to you but looked good to me. Then in 1932 my furniture plant started on a salary-cutting rampage making slashes of $50 and $75 at a clip, until in less than two years I was down to $125 a month. When they wanted to cut still further I got sore enough to tell them their real name. After a fist battle in which I came off victor over the father and son who ran the joint, leaving them with some fine black eyes as souvenirs of the last roundup, I eventually got into state work, first as auditor of the budget at the State House in Olympia. For the past two years I have been what is known in this state as a state examiner, with duties of auditing the financial and other affairs of the various counties, of which we have 39. This occasions moving from one county seat to another every two to five months, although in some cases we get through in one month, in the smaller counties such as this one. My location here is in the Southeast corner of the state, right on the Snake River across from Idaho, and the place is ideally situated from a scenic standpoint. To the south are the Wallowa Mountains and to the southwest are the Blue Mountains, while north of us a range of low hills about three to four thousand feet high stretches clear across the horizon. Lewiston, Idaho, located just six miles north of us, is a very fine, modern, up-to-the-minute town, with everything to be had that can be reasonably expected, and a surprising number of facilities for purchasing are offered for items which are expected only in New York or Chicago. The surrounding country is mining and cattle in Idaho and grain and cattle in this county, and as Lewiston is the only sizable town for about 250 miles in any direction, it enjoys a tremendous trade. Some of the really large firms of the United States have branches there. All the chain stores such as Kresge, Woolworth, Newberry, and so on, as well as the larger of the grocery chains are all there with nice stores.

1905 Continued

"I do not care especially for political work, as I have never been a politician nor can I ever make one of myself. I don't have to mingle with the politicians, however, on my present job; I simply move into the courthouse, take charge of the books in the various offices, make my audit and report, and move on to the next one. It is interesting work, with no boss to watch my movements and with my time my own to do as I please. I expect to get back into commercial work again sometime, when jobs get so they will pay as well as this one, which should be soon now, it seems. As our two girls are both out of our hands now, Mr. Physeck and I have very much enjoyed this gypsying around, and as we have always been able to secure comfortable houses or apartments and our stay in each place has been about three months, we have met many nice people. . . .

"My oldest daughter, True Louise, is now taking a postgraduate course in the University of Washington to secure a high school teacher's certificate, as she did not take that work when she first got her degree. My younger daughter, Ruth May, is within a few weeks of completing her training as a nurse, following in her mother's footsteps. They are both fine girls. I rather think the younger one will go on to complete her own college course next year, so as to have her degree and also be a public health nurse."

In inviting Files to visit him Physeck adds such an interesting description of his summer home that we just can't leave it out: "We have a very beautiful summer place on Puget Sound, not far from our Tacoma home, and if you can just load the family into the old bus and instruct the chauffeur that his next stop will be the state of Washington, you will confer an everlasting favor on myself and family. I expect the two girls to spend all of next summer at the beach, and my wife will join them for a considerable part of the time. If you can make it, I will guarantee to fill you full of grand scenery, Puget Sound clams and crabs, fish of any variety you may wish to go out and catch; so far as your physical well-being is concerned, you can have swimming, motorboating, canoeing, hiking, beach combing, or any sort of plain or fancy loafing you wish, a library of several hundred books to read if you go in for intellectual pursuits, the swellest sleeping porch in captivity, and all the good feed you can hold. All of those you get right at my summer place, while as for the rest of the state, you will find yourself giving vent to a succession of ohs and ahs which no views in the peaceful state of New York or Massachusetts can command. When I say that the mileage from my last county seat to this one was only 498 miles — and I did not cross the state at its longest by very considerable — you will get something of an idea as to its size. The county I last audited had a greater area than any New England state. As you know, if you take the area of Okanogan County and differentiate it with respect to the size of New York State, you will find the maximum of something or other (or is it the minimum?) but in any event you will find ours is better, larger, wilder, more scenic, and so on.

"Now remember that this letter calls for a reply. Don't think for a moment I have spilled my soul on all these sheets simply for your amusement, education, or edification. And don't dictate any letter either. Get out the old typewriter or even your latest Christmas present desk set and get to work, covering everything . . . commencing from the last time you took off your M.I.T. drill suit up to the moment of going to press." — That last sentence would make a good theme song for your Secretary to urge upon a lot of men, who have been very reticent with regard to themselves. Physeck's letter is a beautiful example, but you don't have to go back to the day you took off your drill suit. Start at June, 1905, and you can use even a pencil on brown paper, only write your biography and mail it now.

Physeck incidentally mentions Henry A. Kirkwood, from whom we have not heard directly for a long time. He says that Kirkwood has been living for many years at West New Brighton, Staten Island, N. Y., has two children, and has been very successful. While the Register gives his address as Webster Manufacturing Company, 90 West Street, New York City, we have to get this information via Physeck from Washington State, who goes on to say of Kirkwood: "Of all the boys we knew, he stands far above all of us in achievement. Without a thing but the most sketchy of grammar school education, he educated himself, so that he became rated as engineer and has kept his job throughout the depression, raised a nice family of two children, and remained independent financially — all without one single thing to go on but sheer ability and stick-to-itiveness. Considering the distance he has traveled compared with that any of us have gone, he has us beat about ten to one. We all had high school educations, families with money, and enough to live comfortably on while at Tech. He worked to get the money to pay his way through a year of mechanical drawing and so far as I have ever learned no one has ever given him anything in the way of financial help. Any one of us would have felt ashamed not to have made a fair success out of our lives with the start we had presented to us, while he, with no start, covered a far greater distance than any of us have gone or are likely to go. Three cheers to him, say I, and I know you will agree." Sounds like a story out of a Henty or Alger book, but that's the old '05 spirit!

We hear on no better authority than Sally, his daughter, now in her senior year at the Massachusetts General Hospital Training School, that Ralph Whitcomb, I, is a master of Esperanto and it may be said officially that he will be pleased to correspond with classmates, provided they will write him in that language. — Herbert M. Wilcox, X, is again in the public press — New York *Herald Tribune*, December 24 — in connection with testimony before the Federal Communications Commission's sitting in New York in an investigation of the American Telephone and Telegraph Company's relations to its sound-motion-picture subsidiaries, the Western Electric Company and the Electric Research Products, Inc., of which Wilcox is a former vice-president. — Edward D. Perry, XIII, has a new address, Box 194, Watertown, Conn. Connecticut Assistant Secretaries please investigate and report whether we have another retired country gentleman on our rolls. Investigation of another change of address received from the Registrar's Office results in the return of our letter addressed to James M. De Mallie, VI, 112 North Munn Avenue, Newark, N. J. Can anyone supply the correct information here? Or look him up?

A more definite announcement of our Old Lyme Annual Week-end Reunion to be held on our 32d anniversary, June 4, 5, 6, will be made shortly.

Sidney L. Cole, II, died at his home in Rutland, Mass., on January 14 after a long struggle with tuberculosis. After leaving his position as superintendent of the Municipal Electric Light Plant in Wakefield in 1917, Sid went to Rutland to regain his health. For 11 years he was employed on the staff of the United States Veterans' Hospital, but was obliged to relinquish his duties last spring, since which time his health gradually declined. His home-town paper gives this report of his later life: "Born in Somerville, Mass., Mr. Cole was the son of Lester L. and Annie Lovett Cole. He received his degree from M.I.T. in 1905. A member of the First Congregational Church and its auditor, Mr. Cole was also a member of Rufus Putnam Lodge, Association of Free and Accepted Masons, and on the board of directors of Rutland Entertainment Association, Inc. Near relatives surviving are his wife, Mrs. Eleanor Winther Cole; two daughters, Mrs. F. C. Roberts, Jr., of Phoenix, Ariz., and Alice Cole of Rutland; and a sister, Mrs. A. P. Huested of Glen Falls, N. Y." Andrew Fisher and your Secretary attended his funeral (Masonic) on Sunday, January 17. — FRED W. GOLDTHWAIT, *Secretary*, 175 High Street, Boston, Mass. SIDNEY T. STRICKLAND, *Assistant Secretary*, 209 Washington Street, Boston, Mass.

1907

A successfully delightful evening of good-fellowship resulted when 18 men gathered in the Silver Room at Walker Memorial, Cambridge, on January 12, to enjoy a good dinner, animated conversation around the table, and an informally confidential talk by Hud Hastings about his own experiences and work as chairman of the committee on research and education of the National Republican Committee last summer and fall, as well as his contacts with many people of national prominence. The following men attended: Charlie Allen, Laurie Allen, Leon Chaffee, George Crane, Bill Egan, Ralph Hudson, Ed Lee, Kelly Richards, Don Robbins, Ed Squire, Harold Wonson,

1907 Continued

Dick Ashenden, Bob Rand, Stanley Wires, Oscar Starkweather, Hud Hastings, his brother, Russell Hastings, and Bryant Nichols.

Our President, Alexander Macomber, was unable to attend because at the last minute he had an urgent business call to New York. At the request of the Secretary, Charlie Allen presided. The Secretary brought greetings from many of the fellows who were unable to be present and announced that the following committee would have charge of arrangements for our coming 30th reunion at Oyster Harbors Club, Osterville, Mass., on June 4, 5, 6, 7: Macomber, Wonson, Laurie Allen, Peabody, and Bryant Nichols. Interest in this reunion is running high. In addition to those whose names were recorded in the last Review as planning to be on hand in June, we have heard from Carl Bragdon, who is now with International Printing Ink Corporation, research laboratories, 432 West 45th Street, New York City; E. H. Marsh, who is doctor of public health with the County of Westchester Department of Public Health, White Plains, N. Y.; and Bert Bancroft. All the men present at the January 12 dinner described above expect to be there.

Miss Helen Stearns Allen, daughter of Laurie, was married on January 16 to Lemert William Henry of Cambridge and Pasadena, Calif. After March they will be at home at 24 Shaler Lane, Cambridge, as Mr. Henry is on the research staff of the Harvard Business School. — Dick Ashenden is not only president of L. L. Rowe Company, manufacturers of soda fountain equipment, but also of the Boston Nickel Plating Company, one of the oldest and largest concerns of its kind in the United States. Dick's son, who is associated with him in business, is married and lives in Winchester, Mass. — Leon Chaffee, Professor of Physics at Harvard, is the father of a daughter born in October, 1934. — Charlie Allen and Ed Squire, associated as shoe manufacturers in Spencer, Mass., report that business is first class, "more than they can do." — Through Ashenden we learned of the death of Walter Hoover some time in December in Vancouver, B.C. No further details were known.

And now, men, it's only a short time before June will be here, and June means the 30th reunion of the Class of 1907. Set aside June 4, 5, and 6, anyhow, to be with your classmates, and include the 7th and 8th, if you can, as these are Alumni Day and Commencement Day, respectively, at the Institute. — BRYANT NICHOLS, *Secretary*, 126 Charles Street, Auburndale, Mass. HAROLD S. WONSON, *Assistant Secretary*, Commonwealth Shoe and Leather Company, Whitman, Mass.

1909

Austin Keables is now chief engineer of the New York State Vocational Institution at West Coxsackie. This institution, which tries to convert bad boys of 16 to 21 years of age into good citizens, was formerly the House of Refuge on Randall's Island in the East River. Because of the construction of the new Triborough Bridge, it was necessary to move the institution elsewhere. — CHARLES R. MAIN, *Secretary*, 201 Devonshire Street, Boston, Mass. *Assistant Secretaries:* PAUL M. WISWALL, MAURICE R. SCHARFF, New York; GEORGE E. WALLIS, Chicago.

1911

"His erudition as a craftsman is unsurpassed, his finesse of hand ranks among the miracles of skill, and of living American print makers, Arms is probably the most widely known," wrote Malcolm Vaughan, Universal Art Service Editor, in a syndicated newspaper comment on the early January retrospective exhibition of the etchings and drawings of our classmate, John Taylor Arms, IV, at the Grand Central Art Galleries in New York City. (See The Review, January, 1937, page 160.)

Discussing his rank as an artist, the commentator continued: "The majority of Arms's etchings are architectural subjects and they have singular unity as a whole, Arms having dedicated his career to the medieval spirit as it now stands in stone. If the medieval spirit is worth preserving, then Arms has given and is still giving his career to a lofty principle. Why, then, is there any question as to the loftiness of his art? Certain critics have practically dismissed him with a phrase — 'the meticulous etcher.' In some art circles you will hear it said of his works: 'They are nothing but realism, nothing but photographic reproductions of already existing buildings.' That an existing building, even a minor achievement in architecture, can be cleanly reproduced, yet made into one of the finest pictures on earth, has long been proved. Obviously it cannot be Arms's architectural subjects which are railed against. It would, therefore, have to be his handling, his treatment, of the subject that his antagonists blame.

"One can see how his treatment might be called photographic, but the greatest work of art the world has ever seen could turn out to be the most realistic picture producible. As the present exhibition makes plain for all who have historical perspective, Arms's etchings would have been exalted with praise in any generation save ours. He would be lauded as a rare artist because his spirit kindles another spirit to live again. Behind and within his amazing realism, the prayers and passions of the Gothic age throb into life. It is not his lacelike facts of stone and sculpture but his own creative spirit which is the vitalizer, the reviver. Arms does not essay the poetry of the lyrical etcher such as Munyon or Whistler. His expression is declarative, all his emotion being tempered to the explicit. In the forthright character of his technique he is akin to the Van Eycks, to Holbein and Velasquez rather than to Giorgione, Titian, and Da Vinci."

The eagle eye of Cac Clarke, Assistant Secretary of the Class of 1921, caught a clipping re Bob Haslam, X, in the Newark (N. J.) *Evening News* of November 25 and he thoughtfully sent it along. At a conference between the Newark division sales representatives and a group of executives from the New York City headquarters of the Standard Oil Company of New Jersey, Haslam, general sales manager, stated that sales of petroleum products throughout the country are substantially higher than they were a year ago and should continue so to be.

Dick West, a junior at the Institute now, is the son of our own Bill West, II, located now in the Windy City — Chicago to you — and was put in charge of this year's arrangements for an M.I.T. snow train to carry eager students north in early January if and when there were any snow (which there weren't, Cyril!). — One evening the papers of the East carried an Associated Press story to the effect that "the M.I.T. boys aren't going to ask the Wellesley girls on their snow train this year because last year 100 Wellesley girls failed to show up when the train made a special stop for them at the campus." The dispatch quoted young West as saying: "Their delicate constitutions might be impaired by the severe strain of winter sports." Next evening an Associated Press dispatch from Wellesley said that the college girls there "rose to the barbed fly the M.I.T. students yesterday tossed upon the calm waters of the campus. 'Imagine those Tech students saying we are too delicate for winter sports,' said one of them. 'They had better confine themselves to sailing those wooden bathtubs around the Charles River Basin,' chimed in another, while a third remarked crushingly: 'Why, some of those Tech boys become tired just carrying a slide rule around.'" I sent the clippings out to Dad West and he thanked me a lot, agreeing with me that it brought back old times to read of Tech-Wellesley affairs. Bill is vice-president of the Great Lakes Forge Company, with an office at 612 North Michigan Avenue, Chicago. He says he sees few '11 men out there.

Here in Worcester my own 19-year-old son, Orville, Jr., won his way into the news columns in mid-January when, to quote the Worcester *Telegram:* "The South High School camera club, with its own motion-picture melodrama — believed to be the first ever produced in Worcester high schools by students — won first prize in 'Club Capers,' an interclass contest sponsored by the senior class. . . . The picture, dubbed by its author — Orville B. Denison, Jr., '37, son of Mr. and Mrs. Orville B. Denison, 4 Kilby street — 'The Birth of a Notion' is a 'melodrama to end melodramas' with a background at Green Hill Park and with cleverly executed animated captions and subtitles."

A legal change of name among one of our Scandinavian classmates makes Maus W. Colebrook, V, as we knew him, now Moss W. Colebrook. He has recently moved from Albany, N. Y., to Pittsfield, Mass., where he may be reached at Post Office Box 704. So far as known, he is still a candy manufacturer. Two other address changes received recently show

1911 Continued

that Harold Lord, II, has left Shirley, Mass., and moved nearer Boston, being now at 181 Follen Road, Lexington, while down in the Southwest, Henry Van Hovenberg, XI, has changed abodes, forsaking Texarkana for Box 288, Mount Pleasant, Texas.

How about that New Year resolution to write to Dennie, which I asked you all to make; it's not too late yet and it's from those letters that newsy notes are to be evolved. — ORVILLE B. DENISON, *Secretary*, Hotel Bancroft, Worcester, Mass. JOHN A. HERLIHY, *Assistant Secretary*, 599 Riverside Avenue, Medford, Mass.

1914

Winter is nearly spent, and Alumni Day is but three months away! Of course you will be there if at all possible. Every attempt is being made to make this day comparable with the day dedicated to Alumni in other important colleges throughout the country. Let 1914 do its part!

Lucian Burnham, major in the United States Marine Corps, found his recent transfer from New Orleans to Washington to be an assignment to the Army Industrial College, where, he writes, he is struggling with problems on industrial mobilization. It would seem to your Secretary that Burnham probably holds the record for variety of military assignments, but Alden Waitt of the Chemical Warfare Service certainly is a close runner-up. — Arthur Petts has returned to the manufacturing industry and is now managing the Ellis Tool and Die Company at Chelsea, Mass. His company specializes in special machinery, dies, jigs, and fixtures. — Word has come from the Alumni Office that Charlie Olesen is now with the Stanolind Oil and Gas Company in Tulsa, Okla., but a letter addressed there to Charlie from your Secretary has so far proven barren of results as to further details.

Just as these notes were completed word was received of the death of Nathaniel E. Brooks at the Post-Graduate Hospital, New York City, on January 23. No further details are yet available. Sousa is survived by his wife and a son, who is a student at Princeton. At the time of his death he was associated with The Kerite Insulated Wire and Cable Company. As one of the most loyal and active members of the Class he will be mourned by all, and to his wife and son we all join in expressing our sincerest sympathy. — H. B. RICHMOND, *Secretary*, General Radio Company, 30 State Street, Cambridge, Mass. CHARLES P. FISKE, *Assistant Secretary*, 1775 Broadway, New York, N. Y.

1915

Who was there? On December 8 in Walker Memorial at M.I.T. we had a class dinner. What a party! In defense of the class funds it's a pleasure to say that all the extra expenses of the dinner were paid for by the liberal contributions of several generous classmates. A glorious and record attendance of 32: Bert Adams, Frank Scully, Lloyd Chellman, Jesse Potter, Henry Sheils, Frank Foster, Fred Waters, Abe Hamburg, Bill Brackett, Evers Burtner, Vik Enebuske, Harold Colby, Max Woythaler, Speed Swift, Jack Sindler, Chet Runels, Reggie Foster, Loring Hayward, Tommy Tolar, Weare Howlett, Whit Brown, Seward Highley, Roland Baldrey, Easty Weaver, Charlie Norton, Archie Morrison, Bridegroom Rooney, Frank Herlihy, Pete Munn, and none other, in person, than Johnny O'Brien with the Class Secretary; Al Wexler '21, a great friend of our gang who is seeking adoption by our Class, joined us later in the evening as a guest. This Class is surely achieving a reputation. The dinner brought out the following men whom we hadn't seen for a good many years: Bert Adams, Jesse Potter, Harold Colby, Vik Enebuske, Tommy Tolar, Charlie Norton, and Seward Highley. We welcome them and hope they enjoyed the associations at the dinner so that they will join in all our activities.

A short time ago our class notes told about Bert Adams' activities as a professional magician; in fact, he has held the esteemed position of president of the American Society of Magicians, an honor he shared with the famous Houdini. Herb was unprepared for any entertainment, but he promised to give us a show at the next dinner, so here's something unusual to anticipate.

Charlie Norton's presence was due to the fact that he is back in town with the Carrier Engineering Corporation, Statler Building, Boston, working on heating and ventilating engineering. After the opening salvo of greetings, followed by one of Bert Bridges's tasty dinners, we were treated to Speed Swift's movie show. He had spliced all the recent movies of dinners and class parties with the long film of the reunion at Saybrook, Conn., so that we had a regular show. Those who were present know the difficulty I face in trying to describe Speed's artistic and touching movie appeal for class dues and class support. I presume we are all just at the age where we need the stimulation which Herb's models showed in their poses. I can't tell you any more about this distinctly stag part of the evening, so I leave you to judge for yourselves. There were the usual games of chance, piano playing and singing, and general conviviality to make a very full evening. Seriously, it was discussed and decided to adopt a plan to raise a substantial amount for our coming 25th reunion in 1940. We shall have a meeting of the 1935 Reunion Committee shortly to develop a method of securing five dollars for each of the next three years from about 100 classmates. With this fund of $1,500 and approximately $500 we now have in the treasury, we could well afford to invite, at the expense of the Class, any men from distant points who want to attend this Silver Anniversary but who cannot afford it. I'd like to take this occasion to say most seriously that I need everyone's help in this. Those present were enthusiastic about the plan and I hope you will all support it when you get the committee's or my letter on class dues.

Herb Swift's artistic efforts with his movies must have been too much for him, for immediately upon his return to New London, N. H., he was stricken with acute appendicitis and was operated on at the New London Hospital. I know everyone will join me in being happy that Herb has now fully recovered and is successfully on his way back to good health. Herb's humor in presenting those movies is reflected in this line from his letter: "I was suddenly struck down with pains which turned out to be from my appendix. The doctor said: 'Now or never!' Not liking the implications in that word, 'never,' I gave in, and so it was 'now.'" — Carl Wood and Wally Pike had to cancel their attendance at the dinner at the last minute, Wally to go on a job out in the Middle West, which I believe Arthur Nelson was doing. Bill Kelleher, VI, is in the Boston office of Allen Calculators, Inc.

Welcome home to Douglas Baker and his family. On an original and unusual Christmas card, Doug describes in signs and pictures his new location at 32 Beekman Road, Summit, N. J. We are all glad to see Doug back in this country after the varied and interesting experiences and valuable work that he had in Europe. — In Detroit recently I had a pleasant visit with Loring Hall, whose 18-year-old son, Charles Loring, Jr., will enter the Institute next fall. Time does march on! The years have been kind to Loring, and he looks and feels as good as ever. — Back in 1928 (I think it was), when that hardened old bachelor, Gabe Hilton, reduced the number of the eligible single men in the Class by getting married, I made the pertinent observation: "I wonder the why and wherefore." I now think I know, if not why — wherefore; I recently spent a delightfully enjoyable evening in Buffalo with Gabe and Mrs. Hilton. I hate to have to cramp my enthusiasm in describing these visits I have with our classmates and families, but censorship is censorship in these dignified columns. Suffice it to say, Gabe and Mrs. Hilton are the last words as host and hostess for entertaining visiting classmates.

Well, classmates, it's a great job to be your Secretary, but I'm no magician. I can't pull these notes out of a hat and I've used up all the available material. If you want to read of the doings and the glories of good old 1915, you'll have to send me some letters about yourselves. — AZEL W. MACK, *Secretary*, 72 Charles Street, Malden, Mass.

1916

Your Secretary has rather scant news for classmates this month. His efforts have been unrelenting, but the lack of responses from classmates to whom letters have been addressed has been most disappointing. We hope for better results in the future as we intend to use stamped envelopes, self-addressed, for replies. — Walt Aiken says he is going to stop in Hartford and have a talk with your Secretary instead of writing a letter about himself. Let's hope we will have an

1916 Continued

early visit from Walt, who seems to have made considerable progress in paper-mill machinery manufacturing in Lee, Mass.

From classmate Nicholas Balyozian we hear as follows: "Up to last month I was chief chemist for John D. Lewis, Inc., Mansfield, Mass. I have since severed my connections with this concern. My work was very intensive and has been for the past 16 years. It was mainly research development and production of chemicals used in the textile field and for the past ten years in the synthetic resin field. At present I am taking a much needed rest for a month or more around Boston, which I have always dearly loved. I have the fondest memories of the old Tech buildings. The new buildings are wonderful, but the old buildings are where we worked, studied, and were graduated. My future plans are: a research laboratory in Boston — my own business, with other Tech men to associate with me later; the name: The Hub Research Associates; the address: tentatively, 123 Charles Street, Boston. I will be glad to see any of the boys during my vacation, or later. My phone number at my home in Canton is CANton 0496R. Am sorry I was not at the reunion. . . ."

Ralph Bagby writes as follows: "Thanks for the news on Ed Barry in The Review notes. It was the first word I had had of him in 20 years. For publication, you might mention that I'm alive but not doing anything of interest. Married? Yes. Children? Four! Home address is 1047 Forest Avenue, Evanston, Ill." The foregoing is a rather brief description of passing events for 20 years. Your Secretary, however, was favored with a pamphlet describing a number of two-flavor fillers for ice-cream packaging. Coming as it did in the middle of winter, I was not particularly impressed with anything except the cleverness of the devices. Maybe we will need a lot of Ralph's machines at our next reunion. — Your Secretary saw Charlie McCarthy and Frank Ross recently here in Hartford. Frank continues to be wrapped up in his golf and his family, and Charlie is struggling with a flood of orders at Chance-Vought. — JAMES A. BURBANK, *Secretary*, The Travelers Insurance Company, Hartford, Conn. STEVEN R. BERKE, *Assistant Secretary*, Coleman Brothers Corporation, 245 State Street, Boston, Mass.

1917

Ray Brooks intended to give up flying as of January 1, but will probably continue with the American Telephone and Telegraph Company. It may be news to the Class that Ray is credited with the famous statement about Dean Lobdell quoted in *Fortune* last fall.

Also as of January 1, Augustus P. Farnsworth was admitted to membership in the well-known firm of consulting engineers, Coverdale and Colpitts, with offices at 120 Wall Street, New York City, and with operations spread over the United States and Canada. Originally, the firm specialized in railroads and they have continued to play a dominant part in transportation activities. More recently they have become interested in airplanes, and air transport happens to be both vocation and avocation for Gus Farnsworth. His branch of the work is particularly in industrials of the type on which he worked previously with the National City Company.

Frank Maguire of Beck, Koller, and Company, Inc., spent the holidays with relatives in Brookline and saw many of his friends in the Boston area. He seemed to be weathering the celebration season reasonably well, all things considered.

On a rainy day few locations could be considered more attractive than a spot between the Governor of North Carolina and the Governor of South Carolina. In the inaugural parade, Major Robert C. Erb marched in the rain with the staff of the newly-elected Governor Murphy of New Hampshire, between the contingents from the two Carolinas. The Governor of New Hampshire is Bob's boss and the man he succeeded when he became treasurer and general manager of the J. F. McElwain Company. It is only fitting, therefore, that Governor Francis P. Murphy should have named him as major on his staff.

A high light of the Alumni Council meeting on last November 30 was a brief talk by Walter C. Wood, illustrated by excellent colored movies, of the students sailing the new dinghies on the Charles River Basin. Jack continues to devote time and thought to fostering an interest in nautical matters among undergraduates and he has been most successful in his endeavors. He plans a program during the latter part of the winter showing interesting movies and giving talks. The dinghy fleet has met with instant success, finding a constructive place in the undergraduate life at Technology. Credit is in no small part due to Jack's interest, effort, and skill.

H. L. Rogers, Yale '14 and M.I.T. '17, continues (at this writing) as host to Mrs. Wallis Warfield Simpson at Cannes, France. — John H. Holton has moved to Massillon, Ohio, where he becomes works manager of the Pulp Products Company plant, a manufacturer of a variety of articles, from toys and novelties through display items of various types to large production containers such as pulp milk bottles, oil bottles, and similar articles. These products are made from molded pulp, utilizing what is generally known as the Drake process. We recall that he was formerly with the Carrier Engineering Corporation. He indicates that he will be associated with an executive with whom he has worked closely for the last ten years and therefore starts his new work under favorable auspices.

Frank C. Howard joined the staff of the chemical engineering department of Worcester Polytechnic Institute last year and has been showing up regularly at Boston technical meetings, including particularly the American Chemical Society's monthly lectures. He has charge of the chemical engineering instruction in the school and has coördinated work in that branch formerly distributed among various individuals. He reports that the Worcester Polytechnic Institute's plan of offering open subsidies to promising secondary school graduates with athletic ability is considered a success. Apparently an excellent class of students has been attracted to Worcester, and with the books open to all comers, the situation is felt to be much healthier than with the usual practice of concealed support through Alumni allotments, fictitious employment, and so on. Frank was formerly at the University of Illinois. — RAYMOND STEVENS, *Secretary*, 30 Charles River Road, Cambridge, Mass.

1918

To our gnarled and wrinkled hands has come news of high adventure that is now fast receding into that middle ground between clarity of focus and utter forgetfulness which is occupied by lingering legend. Twin Ned Longley left for India right after Thanksgiving, 1935, and is now back home again without even so much as sending us a picture of a Punjabi on a postal. Whether he went thither to sell his own particular brand of sewer pipe for a PWA project on the Ganges, I know not, but he went, and the trip was nearing the peach-blossom stage of fond recollection before we so much as had a whisper concerning it.

Don MacArdle, who was reported in these columns some time since as associated with the Gulf Refining Company at Yonkers, N. Y., is now in addition to this job one of those harpies or something known as assistant conductor of the Westchester Opera Company, and no nonsense about it. They give performances at White Plains, and Don doesn't have to make any stuttering explanations to his audiences either, so I'm told. Why sigh for the zest of new beginnings when that most appalling of all musical weapons — the cornet — can lead to swinging a mean baton on the opera podium!

Pete Sanger is now resplendent behind an office door bearing his own ample name. Pete started an advertising agency and is advising the mining equipment how to say it with printers' ink. — Information about Charlie Tavener is third hand and therefore exasperating as well as perhaps downright inaccurate. He is working for a company in West Orange (name not known) as production manager and commutes daily from Old Greenwich, Conn., across New York State to New Jersey. I had always thought that commuting was an acquired taste, but this business of living in one state and traveling daily across another to do business in a third is either sheer madness — a fantastic plan to escape the New Deal plus the sheriff — or the child of an eerie wit that is truly grim and delicious in its resolution to be quaint.

Gretchen Palmer, as the knowing ones have already guessed, stopped fleetingly during the Christmas holidays with her grist of news. She looks more and more like Mona Lisa. Honestly! We even got out our Britannica to make a considered comparison. Leonardo couldn't have painted in the glasses, that would have

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been an anachronism; or wouldn't it? Also Mona didn't have such plenteous eyebrows nor any permanent, but so help me, the resemblance is positively upsetting. But to get on with the statistics: In 1933 she went to the Chicago World's Fair; in 1934 to Florida and Texas; in 1935 to Pittsburgh and Ohio; in 1936, she stayed home. We were speaking of the summer, of course. In winter she is executive secretary, private chauffeur of the school bus (50 miles a day), and demon chaperone at the Thomas School. And if that doesn't spoil your day, just look the lady up in "American Women" (sort of a selective feminist who's who, you know).

Al Sawyer came to anchor beside our desk of late to report that, although still connected in a consulting capacity with the Icemaster people of Haverhill, Mass., he is working with the Judkins outfit in Merrimac, building boxes for the Comstock and Wescott mercury refrigerator. Speaking of Judkins, Al said: "They have been building auto bodies for the past 75 years." We know he meant carriage bodies, but these development engineers are that way. — Now go make out your income tax; mine isn't done yet either! — F. ALEXANDER MAGOUN, *Secretary*, Room 4-136, M.I.T., Cambridge, Mass. GRETCHEN A. PALMER, *Assistant Secretary*, The Thomas School, The Wilson Road, Rowayton, Conn.

1919

Answers to the questionnaires sent out a while ago are still coming in, which is very gratifying. Since a large percentage of those received have contributed to class dues, we are wondering if some of those which still remain unanswered feel they are not in a position to help class finances. If so, please be advised that we have approximately $60 in the treasury now at the present time, which is ample for some time to come, since communications to class members will be primarily through The Review, which costs us nothing. If any of you have misplaced your questionnaires, let me know and I'll be glad to mail you others. Please check other members of the Class with whom you are in contact to see if they have returned their questionnaires and are also subscribing to The Review.

We are indebted to Professor Locke '96, Secretary of the Alumni Association, for the following choice bit of news: Abraham J. Williams, a member of our Class in civil engineering, is not General Abraham J. Williams, Vice-president of the Republic of Honduras. This is all the information available at this time, but it looks as though any of us planning a Southern cruise should include Honduras in the itinerary.

Your Secretary ran into Sam Heyman at the Power Show in New York recently and after giving him the old blast, received his questionnaire a few days later after his return to Detroit where he is in charge of the power plant of the Fisher Body Division of General Motors. Sam is married and has a daughter, Judith. He told me also about Ev Doten, who is an engineer with the Cadillac Stamp Company, Inc., Detroit, Mich. Ev wrote an interesting letter on the back of his questionnaire, saying he ran into Cut Davis down at Williamsburg, Va., last summer. Cut is apparently one of the town fathers of Springville, N. Y. Both Ev and Sam plan to attend the 20th reunion and prefer the vicinity of Boston.

I was very pleased to receive word from our genial Gene Smoley, who to my surprise is back in New York City, working for the Lummus Company. When I last saw Gene, which was some time ago, he was headed for some foreign land. Gene is married and has a son, eight months old, who is Junior. He is located in the Hudson Terminal Building, ninth floor, and asks any of the gang to drop in on him when in New York. As soon as we heard Gene was around again, we immediately slapped him on as one of the members of the local Boston Reunion Committee, along with Ellsworth Paterson and Don Way. We hope these three fellows will be able to get the New York crowd organized so that they may have an occasional get-together and choose a New York reunion committee to coöperate with the bunch in Boston.

I have also heard from Russell Savage, X, who is with the Mead Corporation, Chillicothe, Ohio. Rus has a son, Robert Heath. — Louis J. Grayson wrote that he is with the Travelers Insurance Company, Washington Building, Washington, D. C. Louis is still single and plans to attend the 20th reunion. He is "finding life interesting" and occasionally gets to Bermuda and such places. — Eddie Pierce wrote that he is still with the Noland Company, but now in Washington, D. C., instead of Newport News, Va. Although he has been covering most of the Southeastern states, he has not seen any of the Class. According to Ed, Washington is booming and would make an ideal spot for the 20th. I guess all the new building construction is right down Ed's alley, which is wholesale plumbing and heating. Ed has two girls: Polly, 11 years, and Nancy, eight. Ed would be glad to play some golf with any of the bunch when in Washington.

There are about 50 other fellows we have heard from, but that is all this time. The December meeting of the Boston bunch was so successful that we are having another session some time around the last of March. — ARKLAY S. RICHARDS, *Secretary*, 26 Parker Street, Newton Centre, Mass.

1921

It is with genuine regret that we learn, through a news article in the New York *Herald Tribune* that Laurens M. Hamilton, Republican state assemblyman from Rockland County, has announced that he will neither be a candidate for reëlection nor for any other political office. Larry's ill-health and his desire to give more attention to his personal affairs are given as reasons for relinquishing the representation of the bailiwick of James A. Farley, Democratic chieftain, which Larry first captured for the Republicans in 1933.

In his official life, Larry is chairman of the civil service committee at Albany, member of the committees on taxation and on village affairs, member of the joint legislative committee on interstate cooperation, and chairman of that body's subcommittee on interstate tax compacts. To bring his record up to date, it may be noted that Larry followed his attendance at Plattsburg in 1918 with service abroad under the War Department's liquidation board. Resigning from the Army, he resided in Paris until 1929, when he returned to this country to engage in private business. He was appointed a commercial agent of the United States Department of Commerce in 1930, a position he resigned when he ran for the state legislature. He makes his home in Sterlington, N. Y., and we direct there the best wishes of the Class for Larry's speedy recovery and his return to public life.

Characteristically canceling elaborate inauguration ceremonies in order to meet some of the more urgent needs of Lewis Institute, Chicago, of which he is the new director, Dugald C. Jackson, Jr., announced his policy in an address before the first general assembly of the school year in the Lewis Auditorium, as reported at length in the *Lewis Alumni News*. Selecting "Looking Forward at Lewis Institute" as his subject, Director Dugie detailed his farseeing proposals for enlarging the scope of Lewis, maintaining its basic principles but adjusting its interpretations to existing conditions. Since an unusually large number of the students have employment with the many and varied businesses and industries of Chicago while carrying on their studies, Dugie envisions the 41-year-old institute as a college with a metropolitan campus — a vast laboratory wherein to obtain at first hand that combination of simultaneous theoretical instruction and practical application and experience. The Jacksons now make their home at 518 North East Avenue, Oak Park, Ill. We have yet to hear from Dugie whether the eldest boy has become the first son of 1921 to attend Technology — there to follow his interest in aeronautical engineering.

We have just learned of the death some months ago of the father of William H. Young, Jr., of Paterson, N. J., with whom Bill was associated in the practice of law. Sincere sympathy is extended from all of us. — Despite renewed activity along all lines of endeavor, our chart of the volume of communications from the Class still looks like a sales record for 1932! Take a few minutes today to dictate a short note for your Secretaries. — RAYMOND A. ST. LAURENT, *Secretary*, Rogers Paper Manufacturing Company, Manchester, Conn. CAROLE A. CLARKE, *Assistant Secretary*, 10 University Avenue, Chatham, N. J.

1922

A notice received in the mail a few days ago brings the news that William H. Mueser has been admitted to partnership in the consulting engineering firm of Moran and Proctor, which firm is now located in the Graybar Building, New

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York City. — A letter from Randall J. Hogan, who is now a captain in the ordnance department of the Army, tells us that he is stationed at Picatinny Arsenal, Dover, N. J. He regrets the fact that he has lately seen very few '22 men. He had a visit with John Molinar when the latter visited the arsenal a few months ago. — William A. Riley, who has been for a number of years with Stevens, Curtin and Mason, architects in Boston, has now become a partner of that firm.

A few days ago Herb Ham came through Rochester on one of his extended business trips. He came out to your Correspondent's house for the evening and we had a very pleasant visit. Herb appears to have changed very little from the Institute days of Tech Show responsibility. — Commander James M. Shoemaker has been transferred from San Diego, Calif., to Paris, France, where he is now attached to the American Embassy. — We regret to record the death of Frank J. Connors of Newtonville, Mass., on January 2 of this year.

The year of the 15th reunion of the Class has arrived. I am sure that we are all looking forward to news from Heinie Horn in the very near future in regard to this memorable occasion. May we suggest that you all keep in the back of your minds the possibility of breaking away for a few days in June, if you are now planning your summer activities. — C. KING CROFTON, *Secretary*, United Eastern Coal and Sales Corporation, Lincoln-Alliance Bank Building, Rochester, N. Y.

1923

Your Secretary wasn't there because he was on the West Coast, but another luncheon of the 1923 men at Boston was held on Monday, December 14. Ten were present: Myron Chandler, R. D. Brown, Fred Mann, Ed Averell, G. A. Fitzgerald, W. A. Gallup, W. T. Howland, H. B. Golding, Charlie Burke, and Howard Russell. Unless you have already signified to your Secretary or to Howard Russell that you wish to be notified of these meetings, you'll get no notices other than those announced in these columns. The notices are for the benefit of those members of the Class who live in and near Boston, or who may be so situated that they are in Boston occasionally and might attend the luncheons if advised as to date and place.

Philip M. Stearns was honored on January 1 by being advanced to the position of general partner in the brokerage firm of Estabrook and Company in Boston. — HORATIO L. BOND, *Secretary*, 195 Elm Street, Braintree, Mass. JAMES A. PENNYPACKER, *Assistant Secretary*, 96 Monroe Road, Quincy, Mass.

1925

In Detroit on December 28 Tommy Richards, head of the technical data section, General Motors Research Laboratories, addressed Professor Schell's ('12) visiting group from Course XV. At the dinner given for this group by the Detroit Technology Association on December 29, a reunion was held by Frank Fricker, business manager of the Ethyl Gasoline Corporation Research Laboratories, John M. Campbell, research engineer of General Motors, and Tom Price, itinerant student. The Detroit Technology Association lists under 1925: C. A. Campbell, Jr., J. M. Campbell, R. A. Cowles, T. G. Coyle, A. F. Fricker, H. C. Karcher, D. B. Martin, G. T. Miller, E. E. Piepho, H. E. Prady, K. W. Richards, T. O. Richards, G. A. Whinery, and F. L. Young.

From Frank Fricker the following letter was received by Tom Price: "In checking over the list of 1925 graduates in our local Tech club directory, I have been able to contact two of the men and can give you a few items in regard to them. From time to time I will be very glad to contact the other men who are listed, although I must admit that it may require a little hounding from you to keep me at work. T. O. Richards, known as Tommy to his familiars, was originally in the Class of 1923 but joined the Vote Ten Club in his senior year, necessitating an involuntary absence from the Institute for a year or so, and after returning he was graduated with the Class of 1925. So we have always felt that Tommy is a member of our Class even though he spent most of his years at the Institute with the Class of 1923. Tommy was married 11 years ago today (January 22), and can point with pride to two sons: Allen B., nine, and Dwight B., five. . . . His work involves a considerable amount of dashing around and he spends lots of time giving talks on technical and semitechnical subjects before groups of students and various adult organizations. He has been active in professional society work, although I believe he does not hold any offices at the moment. At one time Tommy was very much interested in gliding, but this activity is dormant at present. This winter I believe he is spending most of his spare time building a model railroad and has a trackage of over 50 feet spread out in his basement.

"Douglas B. Martin was in Course XV and a member of our Class. He has been a sales engineer with the Amplex division of Chrysler Corporation for the past three-and-a-half years. Prior to that time he was traveling for the Sullivan Machinery Company, Chicago, Ill., and was in business for himself during a relatively short time. He claims that he has spent so much time traveling that he has been unable to find a wife and has not affiliated with any organizations.

"As for myself, I am just completing the 10th year of my service with the Ethyl Gasoline Corporation and am at present head of the business administration department of the research laboratories in Detroit. I am married and have three children: Jack, five; Susan, three; and Dan, one. Most of my time has been spent trying to make a living, but I have had a fling at the dog shows and at present have a very nice little German shepherd that has real possibilities of becoming a champion. I expect to show her at the Detroit show this spring and hope to have my aspirations realized. During the past several years I have taken considerable interest in the local Technology association and am at present first vice-president. I really think our local group is coming along fine in its development and might add that our average attendance is running well in excess of 50 per meeting at the present time."— HENRY V. CUNNINGHAM, JR., *General Secretary*, 43 Chestnut Street, Boston, Mass. HOLLIS F. WARE, *Assistant Secretary*, 25 Valley Road, Medford, Mass.

1926

The secretariat is running a contest to determine our most-traveled XXVI-er. Just now Bill Millar, Colin Reith, and Ariel Horle are neck and neck. Bill, having once before been in Africa, not to mention four or five other foreign locations, left last fall to take up professional work in Eritrea, Africa. Presumably he is still there, laboring under the shadow of Benito. Colin's mileage includes the distance from Texas to Bahrein Island in the Persian Gulf to Kingwood, W. Va. (102 Beverly Street), whither he repaired recently. Ariel recently returned to Boston from Mexico and quickly embarked again for Peru. Are there any other contestants to challenge our galloping miners and geologists?

Edward F. Kerns has a unique job with the film library of New York's Museum of Modern Art. — Neil W. Perdew works for Fleetwings, Inc., Bristol, Pa. — John Larkin may be found at the Atha Works, Harrison, N. J., of the Crucible Steel Company of America. — Otto Wiessner has moved from Englewood, N. J., to 71 Waban Hill Road, Chestnut Hill, Mass. — Henry King, of our Ph.D. ensemble, is teaching mechanical engineering at Technology.

Professor John E. Nicholas of Penn State sends along one of his technical papers, entitled "Methods of Heating Hotbeds." The apparent redundancy of the title is understandable to us gardeners. Maybe John can help us out in some of our nasturtium problems. — Peter L. Bellaschi, development and research engineer, Westinghouse Electric and Manufacturing Company, Sharon, Pa., recently was awarded the Westinghouse Order of Merit "for the high order of research and investigation of the nature of lightning; for his pioneer work in production of artificial lightning of simultaneously high voltage and high current; for his measurement of these high impulse voltages and currents; for his discoveries and explanation of the physical nature of the current path of lightning; and for his contribution to the literature of electrical engineering within the province of his activity." — J. RHYNE KILLIAN, JR., *General Secretary*, Room 11-203, M.I.T., Cambridge, Mass.

1927

We plan to use at least a portion of this column each month from now until June as a supplementary means of publicizing the approaching 10th-year reunion of our Class. This should be one of the more interesting, if not the most interesting of our reunions, and we believe that with

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the coöperation of all it can be made not only a day of pleasure and camaraderie, but one which will enrich our memories and increase our friendships. We are spread pretty widely over the country, and glancing at the list of foreign addresses, we might say over the world, but even in the areas of greatest concentration — around Boston and New York — our meetings with classmates are, in general, casual and infrequent, and there is little opportunity for exchange of opinion or experience. It shall not be so on June 5 and 6; we are coming together for the pleasure of one another's companionship, to have the opportunity of telling our own experiences, and to warm ourselves in the glow of the experiences of those with whom we were once closely associated.

We do not intend to oversentimentalize a class reunion; it is not primarily that kind of occasion, but it is more than the customary week-end at the beach. We urge all, then, who can, to attend; we can promise not only a pleasant week-end but an experience as well, and that, whether your interests are in molecules or in men.

The reunion will be held at Castle Inn at Saybrook, Conn., on Long Island Sound. This is truly a delightful spot. The Inn was formerly a private estate and is located on a point jutting into the Sound. There are ample grounds surrounding the buildings for every type of sport, including swimming, golf, and tennis. Saybrook is about 150 miles from Boston and about an equal distance from New York City. It is, thus, centrally located for the largest group of Alumni. We hope that everybody in this area from Washington, D. C., to Boston will register early and attend the reunion. We can scarcely insist that members of the Class living in the far West make a special trip East for the reunion, but we ask all of those who can to attend. If any are planning a trip East during the summer, by all means make the time coincident with the reunion dates.

Every effort will be made to assist those who are coming to the reunion from a distance. The country has been sectionalized and in every area containing groups of Alumni a man has been appointed to serve as a focal point for information on the reunion, to coördinate the efforts of the group, and to arrange transportation so that the trip may be as pleasant and economical as possible. Let's make our plans now to come! — RAYMOND F. HIBBERT, *General Secretary*, Care of Johns-Manville Corporation, Waukegan, Ill. DWIGHT C. ARNOLD, *Assistant Secretary*, Arnold-Copeland Company, Inc., 222 Summer Street, Boston, Mass.

1928

Dave Moore's report on himself was brief and to the point. He was married in June, 1935, and is still working for the Crucible Steel Company of America in Pittsburgh, Pa., and he left blank the boy and girl sections on the questionnaire. — George Palo has gone T.V.A. with a vengeance and he and Mrs. Palo are living at 3625 North Hills Boulevard in Knoxville, Tenn. George is sold on the Smoky Mountain region and on T.V.A. He's working on the design of the Pickwick development. — The last information we had about Bus Ruch was that he had purchased a trailer, had loaded in his family, and started for Goodyear blimp operation at Dallas, New Orleans, and then, for the winter, in Florida. Following that, rumor has it that the Ruchs will head for California, where Bus plans to take a further course in aviation meteorology.

The Charles Southwicks have two boys — the elder, aged five years, and the younger, one and three-quarters. Charles is assistant to the director of engineering research of the General Foods Corporation at 250 Park Avenue, New York City, where he is particularly concerned with packaging problems. — Don Sturznickle lost his questionnaire so didn't answer the section on vital statistics, but he wrote from the Hotel Woodstock in New York City to tell us he was working for the Texas Company. — Chuck Topping's letter came from Texas City, Texas, and is so unusual and interesting that I quote most of it herewith: "After running surveys for the University of Pennsylvania Archeological Expedition to Persia for eight months, I went on a short mule trek through the Elburz on an unsuccessful attempt at the first ascent of the Throne of Solomon, Persia's second highest peak. Only result of that was a good reel of movies . . . and the discovery of the first three glaciers known to exist in Persia.

"Then I went east over the pilgrim road through Khurasan to the holy city of Meshed and south past the great salt desert to near the Makran Coast, where I tried to climb the only active volcano in Western Asia but was prevented by the government. The Baluchistan Railroad took me east again to Quetta and from there I went north to the picturesque city of Kandahar in Afghanistan and on up to Ghazni, historic capital of the early Mohammedan invaders of India, who founded the Mogul dynasty, and on up to Kabul. While there, the United States came through with their tardy recognition of the country. I was the only American in the country at the time.

"From there I went down through the Khyber Pass, which is an interesting defile, bristling with forts and full of troops. Peshawar was next, and I stopped a while to look at the ruins of the Greco-Buddhist monasteries at Taxila, where the influence of the Greek governors left in Bactria [now Balkh] by Alexander the Great made itself evident in the fusion of their sculpture with that of the Hindus, early in the Christian era. From there I went to Kashmir and spent some time in a houseboat on the Jhelam River and the Dal Lakes in that idyllic valley. The rest of it was less interesting because better known: the trip down through India as far as Benares, across to Bombay, and home through Suez.

"For over a year I've been back with Pan American Petroleum again, first in charge of construction of a storage terminal at Albany and now down here on a $9,000,000 addition to our three-year-old refinery. . . . I've lectured on Persia, and so on, and shown my movies at the museum of the University of Pennsylvania and at the University Club of Albany. — I shall be glad to hear from anyone in this neck of the woods." — GEORGE I. CHATFIELD, *General Secretary*, 5 Alben Street, Winchester, Mass.

1929

Another year has closed and the new year brings us within two years and a half of our tenth reunion. So many things interfered that it was not possible for your Secretary to attend our fifth reunion. No doubt such was the case with many of the rest of the Class. However, if all of you point to that coming tenth reunion in the summer of 1939 as the writer is doing, we should have the finest reunion ever. Fix the date firmly in mind: early in June, 1939.

The Christmas season brought greetings from Joaquin Llanso, II, and his wife, way down in Buenos Aires, Argentina. Ralph Atkinson, IX-A, and his wife sent greetings from California, where Ralph is working for Eastman Kodak. The card indicated that Ralph is the proud father of a son, Walter, who, we understand, arrived last June. From the H. Charles Peases, XVII, we received a Christmas card featuring son John in a studious mood, reading a book titled "When We Were Very Young." Probably he was wondering whether it refers to the lives of his parents. Last Thanksgiving your Secretary spent a very enjoyable evening with the Peases at their home in Cambridge and found this son John to be quite a coming Course XVII building engineer, judging by the way he assisted his daddy in constructing structures of blocks. Joel Whitney, II, his wife, and two daughters sent their Christmas message from Nashville, Tenn., where Joel is now promoting General Electric air conditioning. Gratz Brown, II, sent his greetings from Flint, Mich. From New York we heard from Adam Stricker, Jr., IX-B, and his wife. Professor Locke '96 reported that the Alumni Office received a card from Mr. and Mrs. John M. Way, III, which was the first news that office had had of John's marriage.

Newspaper clippings inform us of the engagement of Sears Hallett, XV, to Miss Dorothy Manning of Chestnut Hill, Mass. The announcement stated that Sears is engaged in business in Newton Upper Falls, Mass. We also learned of the marriage of Francis J. Powers to Miss Mary H. Murray of Beverly, Mass., on October 14. This announcement stated that the bridegroom had recently returned from a year in La Havre, France, where he had been employed as technical adviser for Standard Oil in the erection of a refinery there and that he was now an engineer for the Colonial Beacon Oil Company of Everett, Mass. — Dedham, Mass., was the scene of the wedding on

1929 Continued

September 19 of William R. Shannon, II, to Miss Christine M. Helmer of that town. They will live in Dedham. If our last information is correct, Bill is with Stone and Webster in their Boston office. A late news clipping announces the marriage of James B. Magenis, XV, to Miss Marjorie Jean Savage of Brookline, Mass., on January 2. From a common friend whom I met in New York just after Christmas I learned that Frank Stratton, V, was married on December 28 to Miss Myra A. Coffin of New Rochelle, N. Y. Frank is now instructor of music at Massachusetts State College in Amherst, Mass. You may recall that he received his master's degree from the Eastman School of Music in 1933. Evidently Frank was right in his element as Musical Clubs director when we were undergraduates. My informant told me also that Frank's wife was instructor of music at the Burnham School in Northampton, Mass. Interests could hardly be more mutual. We join in wishing the above married and engaged classmates great happiness and success in their latest ventures. We do wish some of the boys would give us the information firsthand, for we are not likely to catch all the news announcements even in the leading papers. Then, too, only Boston and New York seem to get full coverage by the press clipping service subscribed to by the Technology News Service.

Your Secretary went East for both the Thanksgiving and Christmas holidays but had very little luck locating those classmates he had an opportunity to look up. A telephone call found Paul V. Keyser, Jr., X, well and enjoying married life in New York City, where he is still with Standard Oil. A long-distance call from New York City to Larchmont, N. Y., failed to locate Brig Allen in his new residence. From Charlie Pease, XVII, in Boston I got the information that he is still with the R. Guastavino Company, makers of acoustical tile, and he likes his work there. Charlie quotes Sammy Wixon, IX-B, as working and residing in Cambridge, where he is connected with the Liberty Mutual Insurance Company. Steam Harrison, I, and Harry Weare, I, are located in Ware, Mass., where Steam is working for the state and Harry is doing engineering work, the character of which I cannot recall. Holidays are difficult times to locate people, probably because they are also traveling home. I have about the same luck when looking up men on my summer vacations in the East.

An article in the Boston *Evening Transcript* covering the musical events of January 2 listed a meeting of the WPA Composer's Forum-Laboratory at Repertory Hall, the program to consist of music by Carl Howard, IV-A. Carl is quoted as having started his study of music three years ago after holding positions as surveyor, draftsman, chemist, and teacher.

Don't forget that letter you are going to write to your Secretary. We are all interested in covering the years 1929 to 1937. — EARL W. GLEN, *General Secretary*, Box 178, Fairlawn, Ohio.

1930

Joe Harrington, II, is the proud father of a baby daughter, Joan, born in September. This news comes to us from Jack Latham, II, whose son, Bill, is rapidly acquiring his first teeth. Rumor has it that Gordon Lister was married last June, but to whom we cannot report. — Chester Ewing, VI, recently took as his bride Miss Jean Sweetland of Boston, and Ken Tator, X, was married to Miss Louise Matheson of Somerville, Mass., in November. Our congratulations are extended to each of the above members of the Class!

At a recent meeting of the Alumni Council Ed Blake, XV, was one of the invited guests. Ed tells me that he is traveling up and down the countryside in the interest of Dewey and Almy; also that a coursemate, Leonard Goodhue, is progressing rapidly in the same company. — Johnnie Worcester, XII, has left these shores and is busily engaged in the mining industry in far-off Asmara, Eritrea, North East Africa. He is with Rogers, Mayer, and Ball Company, and I am sure that letters from any of his friends in the Class would be more than welcome. — Two members of the Class have deserted the academic life: Frank Temple, XIV, and Bill Perret, VIII. Last year Frank was teaching at the University of New Hampshire and is now in Wilmington, Del. Bill is in Houston, Texas, after spending last year at the Institute. Sid McCuskey who was connected with the Harvard Observatory in Cambridge, is at the present time teaching mathematics at the Case School of Applied Science in Cleveland, Ohio.

It is with deep regret that we report the passing of two classmates, James Yates and James Deery, XV. The latter was a member of the staff of Jamaica Plain High School in Boston.

News continues to come in slowly and items of real interest are hereby solicited firsthand from the members of the Class concerned. The Secretary would welcome a deluge of letters which would snow him under, and promises to do justice to all of them.— PARKER H. STARRATT, *General Secretary*, 75 Fenno Street, Wollaston, Mass.

COURSE VI-A

Perhaps it's that New Year's resolution feeling; at any rate, here's the news: Last April Frank Burley left the research department of Philco to take a position with Heyer Products Company, Inc., in Belleville, N. J. His moving from Philadelphia to Bloomfield, N. J., was the high point of the year to me, for it saved me a lot of carfare when I wanted to see him after that. (I could and have walked two miles from East Orange to his place.)

It was just before the above event that Bill Wannamaker switched his attentions from oil research with Shell Oil Company to Philco, so Philco keeps its quota of VI-A men from this Class, including Ray Bowley.

Then, of all things, Bill Griffith came to light again! He's back with the Western Electric Company, Inc., at Kearny, N. J., after some great experiences that carried him South, then to the West Coast, and now back again and that I intend to relate to you as soon as I can hear them firsthand. I've heard them so far only through Steve Prendergast, and you know what that means.

Finally, I received a call from George Schaible in Albany, N. Y., who told me that at last his sterling qualities were being recognized as he had a new position in the Upstate New York chief engineer's office (with the New York Telephone company, as ever). Incidentally, there are two other men with the New York Telephone Company: Bub Wilson is doing well in Buffalo, being now an installation foreman. Your loyal servant remains a member of the valuation and depreciation staff, and is finding the work of ever-increasing and more timely interest. — EARL E. FERGUSON, *Secretary*, 321 Park Avenue, East Orange, N. J.

1931

Well, believe it or not, this "freshman" reporter received his first bit of class support during the past month and a vote of thanks goes to Charlie Dolan for his answer to my appeal in the January Review. Charlie has had a varied career since graduation, as you will note from his letter which follows: "Since graduation I have had a number of jobs — some good, fair, and lousy — including two Civil Service appointments, and one and one-half years as secretary of the Quincy Merchants Association. Last year, as consulting parking engineer, I made thorough surveys of the parking problems in Quincy and in Cambridge, which resulted in some publicity in *Retailing* and in *The American City*.

"I have been in my present job, controller for Sheridan's (the South Shore's biggest and smartest department store), since the middle of November. I have charge of sales and stock quotas, . . . advertising and payroll budgets, . . . systems, and reports. It is something I can get my teeth into, and I am optimistic about the future.

"A Christmas card from Bob Wilson was postmarked Concord, N. H.; he must still be with Sears, Roebuck there. Jim Wye is with Lincoln Stores (an assistant manager, I think). He is in Quincy occasionally on visits to the head office. Zwicker is doing radio work at Fore River and living in Kingston, Mass. McNiff is with Hygrade Sylvania in Salem, Mass. I saw about 35 of the Class at the reunion, but that's old stuff. Freddie Brooks is with some firm in Springfield, Mass., but I forget the name."

Many thanks Charlie for your fine letter and all the information. I hope that others will follow suit and swell these columns. Bob Wilson is in Manchester, N. H., with Sears, Roebuck at last reports. Bob, along with Stott, Spruill, and Harry Smith, went with Sears upon graduating from Tech. After their apprenticeship in Chicago, they were scattered to the four winds; Bob reached Manchester, N. H., via Aberdeen, S. D., and I don't know just where the rest of

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the lads are. — Eddie Abbott, our fireballer of olden days, is with Sears in Chicago, and I'm looking forward to a letter from that quarter; Eddie never could keep quiet for very long.

Elaborating further on Charlie Dolan's letter: McNiff is most certainly with Hygrade Sylvania and so is Howie Richardson. I see Johnny at club meetings about every month, and I hope in the next issue to include some information from John about '31 men in and around Salem and at the Hygrade plant. — Fred Brooks is located in Springfield working for the Gates Rubber Company. V-belt drives are their specialty, and Fred is traveling Western Massachusetts, upholding the honor of the Gates V belt. Incidentally, here is another source of information which as yet has not even been tapped.

My story on Dick Blasdale's wedding in the January Review was slightly cockeyed due to a faulty source of information. However, the newspapers have printed the truth once again so I stand corrected. Dick and his bride, the former Miss Rhona Irene Perkins, daughter of Mrs. Theron Dennis Perkins of Bay State Road, Boston, were married December 11. Eliot Graham and Arnold Childs of '31, and Leon Thorsen '30 were ushers.

From the Boston and Chicago papers we learn of the engagement of Miss Alice Mary Eckman of Forest Hills, Long Island, N. Y., to Richard Dean Mason. The wedding will take place in the early spring, after which Mr. Mason and his bride will make their home in Chicago, where he is a patent attorney with the law firm of Davis, Lindsey, Smith, and Shonts. — Mrs. Frank J. Beck of Newton Highlands, Mass., has announced the engagement of her daughter, Miss Dorothy May Beck, to Frederick G. Suhr. Mr. Suhr attended the Bliss Electrical School in Washington after leaving Tech. From Newark, N. J., we find that Frank R. Forrester has married Miss Ethel Catherine Robertson. They are now living at 19 Pingry Place, Elizabeth, N. J. Also from Newark comes news of the wedding of Miss Elise duPont, IV, and Earle Maury Elrick. — That just about completes the news for now. More next month. — BENJAMIN W. STEVERMAN, *General Secretary*, 11 Glenland Road, Chestnut Hill, Mass.

1932

Fifth reunion! It hardly seems possible that it was five years ago that we were in the spring of our senior year. Remember the gang, each member with his peculiarities but all good fellows for all that? We have all got out of touch with each other except in a few cases, and I am sure it has been mainly a case of being too busy and of letting correspondence slide. Let's all think seriously of what it will mean to renew many acquaintances and to spend a week-end with our contemporaries of the business and technical worlds. By the time this is published you will have received the initial information about the reunion of the Class. Since before the first of the year, your officers have been formulating plans that they feel will make this an outstanding fifth-year reunion. The most important step toward insuring success was the appointment of Thomas E. Sears, Jr., as the chairman of the reunion committee. Tom, whom I am sure you all know, has remarkable ability along these lines, as you probably remember. There is a lot of work involved and it can be paid for only by the coöperation of all and the success of the week-end.

Since last fall many things must have happened to the members of this Class, but you would never know it by the scarcity of the news. Starting with an item that is long overdue: On October 12, Almer Hamilton Orr, Jr., married Miss Jane Lathrop Crannell in Pittsburgh. The next day on their way to Bermuda they stopped by here with the best man, Tom Sears. — Bob McCaa wrote me a note in November, the only one received in answer to my plea. Of course he had something special to announce to the world: the birth of a son, David Jenkins McCaa, on November 5, whom he describes as "a seven-and-a-half pounder; his fingers are already itching for a slide rule." Bob is doing electrical engineering work at York Ice Machinery Corporation. — CLARENCE M. CHASE, JR., *General Secretary*, 410 Church Street, Bound Brook, N. J. CARROLL L. WILSON, *Assistant Secretary*, Room 3–210, M.I.T., Cambridge, Mass.

1933

The fellow on the writing end of this column has decided that married life agrees with him very well. So well, as a matter of fact, that he completely forgot to send in any class notes for last month's edition of The Review. But then, you have to give a fellow a few months to come down to earth again!

Here are a few more lucky fellows who have married lately: Warren Webster to Miss Louise M. Ray on November 21; Ernest J. Whelan to Miss Katherine Haley during November; Norman Spofford to Miss Lillian Standley on December 3. The latter couple are living at 8 Cherry Street, Danvers, Mass. Spofford is employed by the Boston and Maine Railroad. Tom Chadwick and his bride, the former Miss Rebecca Norcross of Cambridge, who were married on November 28, are living at Maple Hill, Newburgh, N. Y. Mr. and Mrs. Robert Hanlon (Marie Eileen Faircloth), whose wedding took place during December, now make their home in South Bend, Ind., where Hanlon is employed by the Bendix Company as an aeronautical engineer.

And here are two fellows who were wise enough to take the first step, *i.e.*, they got themselves engaged: Matthew Piskadlo to Miss Alice Buczynski, and Robert Burdick to Miss Elsie Kent Robottom. The latter plan to be married this June. Burdick is at present on the U.S.S. *Houston*. — An announcement from Rudy Rosas from Mexico announces the arrival of his son, Rodolfo, Jr., on October 24.

A note from Professor Locke '96 tells of the resignation of Percy S. Gardner, Jr., from the staff of the Dayton Douglas Cyanidation Company, where he was superintendent, to conduct his traveling mining school for the state of Nevada. — We also hear of the awarding by Brown University of a doctor of philosophy degree in mathematics to Morris L. Kales of Roxbury, Mass. — A note from Bretton Perry, who is employed by the American Can Company, tells of his transfer from their Austin, Ind., plant to their Tampa factory. His new address is 334 Hyde Park Avenue, Tampa, Fla. — My last bit of news is that Bill Huston, who is still with Calibron Products, Inc., in Jersey, has taken a two months' leave of absence to travel in the interest of the Oxford Group throughout this country and spread the cause of this movement.

Let's have some mail here in Brooklyn. We are all interested in what YOU are doing. Drop me a line. — GEORGE O. HENNING, JR., *General Secretary*, Belmont Smelting and Refining Works, Inc., 330 Belmont Avenue, Brooklyn, N. Y. ROBERT M. KIMBALL, *Assistant Secretary*, Room 3–107, M.I.T., Cambridge, Mass.

1934

Your interested Secretary is pleased to note that classmates are getting along in the world. The letters I have received contain feelings of optimism and buoyancy which give foundation to the fact that better times are here. Tech men lead a prominent part in bringing about better times. It is only through the development of new economic activity and the promotion of it to the public that we are able to drag ourselves out of the hollow in the statistical curves of business and social activity. Even though 1934 men are in the background at present, their efforts in their respective places add impetus to the forward movement. I feel that from the very nature of our education we are fitted to discover new things or to promote our existing methods more efficiently. As a result of these efforts our personal reward will be greater, whether it be financial or in the form of an increased capacity to produce. No one has been fired yet for taking a bird's-eye view of his own work, looking for new methods or ways of improving existing methods whether it be in production, marketing, or management. You fellows will have to pardon your gray-bearded old Secretary for discoursing so eloquently on the virtues of the old maxims of hard work and an alert eye, but one must see that classmates are making progress, living up to Tech's reputation, and getting paid for it.

From Canada, Claude Beaubien writes that he is indirectly working for the same boss as I am. He is completing a two-year training course with the Aluminum Company of Canada. Aluminum and Gulf Oil have both been under the very capable management of the Mellon interests. — Dan Cupid has opened a Canadian subsidiary and his first undertaking was Jean Raymond, who was married on February 6. Miss Suzanne Morin is the young lady. Jean is in business with his father in Outremont. — Sam Goldstein, XV, is an engineer with

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the Republic Pipe and Supply Company, selling, installing, and engineering air-conditioning equipment in and around Boston and New England. — From Buffalo, N. Y., Theodore Hetzel, X, writes that he is in the testing department of the Rayon DuPont Company as a chemical assistant seeking to improve and correct the various steps in rayon production. Cupid winged him also; Miss Ruth McMahon is to be Mrs. Hetzel early in July. — Bill Schumacher is with the export division of the General Motors Corporation in Brooklyn. — Obie O'Brien, XVII, is now located in Chicago as an engineer with the Travelers Insurance Company. Obie is not married, yet, even though from other sources I hear that he is engaged. I wonder if that has any connection with his experience as inspection engineer for the construction of the new science building at Wellesley College?

Ed Geittmann, the S.S. *Statendam* rigging climber, writes that he has been handling the flexible budget system for the General Motors gear and axle plant. Ed thinks Art Esslinger is a low form of animal life even though he is in the advertising business. This opinion will be rescinded upon receipt of a letter from the aforesaid form of animal life. — Jack Chesterman writes that he is with the commercial department of the Bell Telephone Company in their Newark, N. J., offices. Shortly after graduation he married a Pittsburgh young lady whose maiden name he omitted to mention in his letter. Jack thoughtfully writes that he sees Bill Coleman, VI, now married, and that Bill is living on Long Island and working for the Pennsylvania Railroad. — Glen Woodbury, VI-A, is getting along excellently with the 4-One Box Machine Makers in Rockaway, N. J. He was recently married.

We all remember the fellow who could leave the ground and not come down until he'd moved about 25 feet farther on. The fellows on the track team will be interested to know that their star broad jumper, Walt Wrigley, is now a physicist with the International Printing Ink Corporation in New York City. He is living at 31 Sutton Place. Dan Smith and Charles Wesley, both VIII, work in the same lab with Walter. The latter writes that Chuck Jerome, VIII, is rooming with him and doing research work on the photomicrographic investigation of pigments for the same corporation. As to engagements, and so on, Chuck won't talk and Walter says he has nothing to talk about as yet. — I hope that when you fellows learn through the medium of The Review that a classmate of yours is living in the same city with you that you will get together *pronto*.

Herbert Andrews, X-B, is at present in the sulphuric acid plant of the Grasselli Chemical Company at Linden, N. J. He is not yet married. — Rees Schwarz, XV, is with the Wellington Sears Company, cotton textile manufacturers in New York City.

I was pleased to receive a fine letter from our exhockey star, Johnny Hrones, who is teaching applied mechanics and advanced machine design for Course II at the Institute. From John's letter we learn: Dave Mooney is also at the Institute, doing research work for the American Society of Mechanical Engineers; Ed Sylvester is seriously at work now on advanced metallurgical research; Neal Karr is engaged to Miss Dorothy Boomer of Waterbury, Conn. His position with the Waterbury Paper Box Company may have something to do with meeting the young lady in question. Fran Jenkins is now assistant materials engineer for the Bethlehem Shipbuilding Corporation at the Fore River yards in Quincy. (Incidentally, I wish that the Bethlehem group at Fore River would get together and drop me a line. A great many Courses are represented there now.) With the Fairbanks Morse Company in Boston is Fred Johnson, II, who, incidentally, is engaged to Miss Kae Curley of Roslindale, Mass. Fred is a sales engineer in the scales division of the company. Frank Milliken, goalee *par excellence*, is married and at present living in Salt Lake City. Roger Coffey is actively engaged in engine design work at the Tech labs. Leo Carten is governmentally employed with a position at the Aberdeen, Md., proving grounds. Charlie Lindsey, after two years advanced work at the Institute, has now become affiliated with Babcock and Wilcox Company in New York City. Brad Hooper, III, now a ceramic expert, is also to be in New York with a responsible position in the research department of the same company. Herbie Plass and Miss Martha Hathaway were married. Mrs. Plass is taking a Ph.D. at Tech while Herbie, who is also Hubbie (I'll stop that here and now), is at the Harvard Medical School. A small first edition of the Parker family is said to have been created (a boy). His father, Charly Parker, has a fine position with the American Iron and Steel Institute of New York City. Charly is living in Kew Gardens. Johnny neglected to say who Mrs. Parker was before her marriage. Roger Williams, also married, is with the Army Engineers in Providence, R. I. — To Johnny Hrones goes the honor of writing me the finest letter of the month. I'd like in the future to see some more letters like this. It shows interest, and I greatly appreciate it.

I have received a great many announcements of engagements and marriages which will be printed next month. I trust that you fellows will forward any clippings you encounter in your local papers about '34 men. In closing, with one hand on my trusty Underwood and the other around a sheaf of class notes, I propose a toast to all 1934 men and hope that when one or more are gathered together, they in turn will pledge a toast, first to M.I.T. and then to 1934, the memories of which are ever silhouetted in our minds even though the details are beginning to grow dim. It takes only 20 minutes to write a letter to me; for you, it is a means of letting the rest of the Class and M.I.T. men in general know what, where, and how you are. — WILLIAM G. BALL, JR., *General Secretary*, 18 Ware Street, Cambridge, Mass. ROBERT C. BECKER, *Assistant Secretary*, S. American Development Company, Apartado 655, Guayaquil, Ecuador, South America.

1935

I have arisen from among the near dead, this time to report that class news, having been suffering from that scourge of mankind, the flu, may be a bit sketchy.

Here are the engagements as taken from the papers. If the gang keeps on falling for the weaker (?) sex at the present rate, your hard-working Secretary will soon be the only bachelor left. The following couples have announced their good intentions: Mary Bradford Paine and Wes Loomis, Elizabeth Belisle and Jim Wiedeman, Betty Macomber and Jack Bainbridge, Madeline Goodhue and Utley Smith, Elma L. Simm and Gurdon Butler (graduate student with our Class).

Here are a couple of quotations from Professor Locke '96: "Jorge Villa returned to South America last spring, and a report from him in December was to the effect that he had held down the job of chief assayer for three months. This was keeping him busy and incidentally giving him some good experience in that field. They have six mining engineers in the field collecting samples which are turned over to Villa for assay and the obtaining of necessary information on which to base plans for proper metallurgical treatment. The section of the country is reported to be the richest in gold and silver minerals, but unfortunately it is very unhealthy. He gave his address as Planta Metalurgica Nal, Palacio Nacional, 4° Piso numero 16, Medellin, Colombia, S.A. — Christmas greetings were received this year bearing the signature of Mr. and Mrs. Robert G. Clarke, which would lead one to believe that Mr. Clarke, who is with the Norton Company in Worcester, Mass., may have recently acquired a wife, although he has not made any direct announcement of that fact. Some of his friends noticed of late a special interest on his part in the gentler sex and in fact one particular individual of the gentler sex, all of which ties in with the suspicion expressed above." How about letting me have the details Bob?

Turning to the letters, we have one from the class humorist, Jim Casale: "In pursuance of my own New Year resolution and your own request, I will refrain in the future from reporting to you as official, ficticious events and imaginative sketches concerning our classmates. (Secretary's note: I hope that statement itself is not a figment of Jim's imagination.) The following reports are entirely authentic: It is my inexorable belief that Stanley M. Lane is, without a vestige of a doubt, a scoundrel. He has made certain calumnious remarks; he is skeptical of my intellectual integrity; he identifies me with the low-brows — all accusations without basis. Why is it that I read only the classics of the Sunday paper comics, leaving the lesser comics like the 'Katzenjammer Kids,' 'Tillie the Toiler,' and so on, to those less intellectual than I? And for Porter's information, I can state that Lane cannot differentiate

1935 Continued

me into partial derivatives because I got an H in M21, whereas he garnered only a C. However, my premature announcement of Lane's matrimonial venture was only a portent of a future event, for on July 19 last he married Miss Charlotte Schneider of Helena, Mont. (Secretary's note: I checked this item with Stan this time and it's correct, and, as you will notice later, Bob Olsen sent in the same information.) And now that Stan no longer has time in the future for beer parties and frivolities, I do in all sincerity offer my congratulations and best wishes. . . . Sometime in the future Stan can come back at me when I marry Elsie. (Secretary's note: Say Stan, how about some retaliation to some of Jim's cracks?)

"That coperpetrator of that redoubtable monstrosity, 'The Testing of a Virginia Gold Ore,' Bob Clarke of that famous thesis combination of J. Eugene Casale and R. Goodhand Clarke, has settled once and for all in Worcester, Mass. Bob has forsaken brown bagging and the hardware business to accept a job with Norton Company. In a very obscure manner he speaks of 'little acorns and big oaks.' Alas, as I have complained to Mal Porter, we, the single, the defenseless, the impressionable, the backbone of these yere United States, are on every side losing out to the organized, splendidly equipped, ubiquitous forces of femininity! Mal Porter and Ed Clark, loyal and true men of III (attention Clarke and Madden), had a fine game of goose chasing — Mal the goose and Ed the chaser — all over Colorado and Montana. The gander was going to help the chaser land a job somewhere in Idaho Springs or Cripple Creek, Colo. Porter speaks optimistically of his prospects at the Contact Mine, a silver-zinc-manganese outfit at Phillipsburg, Mont., and most guardedly of the boss's daughter. Clark finally joined the staff of the Climax Molybdenum Company mine at Climax, Colo. Mal and Ed both serve in the capacities of junior mining engineers. Frank Lovering is stationed at Rodessa, La., as junior petroleum engineer for the Phillips Petroleum Company. Until the recent death of his father called him back to Peabody, Mass., to take over and manage his late father's business, Mike Arakelian was research assistant in the research laboratory of the Phillips Petroleum Company at Bartlesville, Okla. I sympathize with Mike and hope truly that his new business duties and responsibilities will act as a compensation and anesthetic for the irreparable loss of his father. (Secretary's note: I am sure we all join in that thought.)

"Bob Madden seems enthusiastic as ever about his steel metallurgical job with Bethlehem Steel at Johnstown, Pa. He waxes romantic, practically poetic, when he relates how, in spite of all the junk and junkinalia added in its making, his Johnstown plant open-hearth steel is the finest in the country. The recipe for his open-hearth steel reminds me of the ingredients for that remarkable potion brewed by the three witches in 'Macbeth.' For myself, I remain in the employ of the Utah Copper Company, my present status: operator in the fine grinding and classification department of the Magna concentrator. I cannot describe how obsessed and tantalized by the thoughts of a nice, warm bed does the unfortunate operator become who has to work the wee small hours in the morning on graveyard shift. Falling asleep is too apt to lead to choke ups or disaster in varying degrees among the multitude and maze of drag classifiers, ball mills, elevators, laundries, and distributors. The ultimate result of such disaster is a pink slip. It starts like this: 'Notice: your services are no longer. . . .'"

Our next letter is from Phil McGoohan: "Since this is my first report I must start at the beginning, June, 1935 — how time flies. After completing school I attended the Reserve Officers Camp at Fort Wright, N. Y., for two weeks and then succeeded in getting myself a job with the Gulf Refining Company in Port Arthur, Texas. I was working with Pete Peterson. Down there I worked in the steam department and spent my time testing steam pumps. It was great experience. During the longshoremen's strike last year, I worked on guard duty around the refinery and succeeded in getting appointed to the high office of deputy sheriff during that time. You'd never think that a Tech man would turn out like that. I worked in Texas until last May 10, when I was offered a job by the Chrysler Corporation in Detroit to attend their graduate school. No sooner said than done, and I pulled up anchor and hauled up to Detroit. In this course we work in the various engineering departments for three-month periods. So far I have been in the radiator, structures, and air-conditioning laboratories and enjoy the work very much. Besides this laboratory work, we attend school for about two hours per day. At present we are taking public speaking, business law, and business psychology. I feel that these courses are just what is needed to top off the good engineering education I received at dear old Tech. At the end of two years I will receive a master of mechanical engineering degree to be added to that beautiful S.B. I already have. Last week I secured one of our classmates for a roommate. He is Johnny Ryan and at present is working in the metallurgical lab at the Chevrolet plant here in Detroit. We attend all the Alumni Association meetings together and have a swell time at every one of them." Phil wrote from the home of Elmer Szantay, whose addition to the letter follows: "From July, 1935, to July, 1936, I was with the Sinko Tool and Manufacturing and then went to work for Crowe Name Plate and Manufacturing Company (Chicago) in the heat-treating and tool and die departments. The pay envelope is much bigger and the experience is of very great value. I am now with Crowe and at the present time well satisfied. Crowe manufactures name plates for firms all over the United States and South America. They also do a large business in radio tuning dials. . . ."

Here is another letter from a "first-time" writer. (Seems as if a few more of the gang have decided to give the rest of us a break.) Perry Ware says: "I completed my master's thesis on the second of December. About a week and a half later I got a job with the Champion Radio Works in Danvers, Mass. Roly Hanson has been working here a year and a half, and, as he lives near me, I get a ride to and from work each day. George Knapp is also here, and if anyone can be said to be my immediate superior, I guess that he's the one. It's a fairly small company, and everyone is left somewhat on his own responsibility. That's the kind of job that I like, for I can't think of a better way to learn the business, or any business for that matter. The work has been very much diversified and can hardly be classed as monotonous. I've done about everything from repair work to production testing, with a little drafting thrown in."

Eddie Woll is the next to let us in on the latest information. Eddie left Bethlehem Shipbuilding Corporation some time ago and has been working in New York City. Since he has been there and up to the early part of January, he had seen Don Gittens, Chris Rafferty, and Louis Fong. He'll probably see plenty more of the gang before long. Here's his letter: "About the company that I am with: The name of the outfit is Taller and Cooper and its products are electromechanical equipment. The sources of income of the company are from the manufacture of Acme time stamps, package printers, business machines, and toll equipment. At present the company is concentrating on the toll-equipment business. A few typical installations are the Sumner Traffic Tunnel in Boston, Jones Beach on Long Island, the new Henry Hudson Parkway, and the new Triborough Bridge. Equipment is now being manufactured for other toll crossings about New York and for the Golden Gate Bridge in San Francisco. At the present date Taller and Cooper toll equipment will shortly cover every important toll crossing in the country."

Bob Olsen sent in a rather interesting and informative letter: ". . . A funny thing happened to me about three months ago: About five minutes past nine one morning, I was scurrying to work, trying to beat the old time clock, when whom should I run into but old man Lars Ekwurzel. It certainly was a surprise because I did not have the slightest notion that there was a '35 man within miles of me, and incidentally he was the first of that strange species I had contacted in many a moon. Well, of course, I was all set to renew old times, and so on, but 9:05 A.M. is no time for such things. Accordingly I told him my address, but neglected to take his. And of course the old son of a gun failed to call me up — in fact dropped clean out of the picture.

". . . Seems as if the only thing existent in Pittsburgh as far as M.I.T. men are concerned comes in the form of Sigma Chi's. I'm rooming with one now — Lea Hibbard (call me Cutey) Spring. (For the

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Class's information, Hib won a beauty contest recently — hence the Cutey). To get back to the subject: Lea, Jack Lowry, Emory Hukill and myself were discussing the glory that was M.I.T. over a lemonade or two one evening. Now they are all Sigma Chi's. Emory had come down for the week-end to get a taste — literally — of the Smoky City, and we were just waxing eloquent, when who should walk into the bar but Dan O'Conor, and a lad named Fairless. Every one of them was a Sigma Chi! Dan, incidentally, was with a very charming young lady, and the two of them were evidently thinking the matrimonial question over very seriously.

"Last November I received a very interesting letter from Mel Farquhar. This time he goes with Waterbury Tool Company. Here's his description of the product they manufacture: 'Only make a hydraulic transmission, five to 150 horse power according to size, speed indefinitely variable from zero to speed of driving motor, and the transmission is positive. Driving motor can be run continuously, and the transmission will transmit power at speed mentioned above in either direction with no break in power or in rotation of driven shaft during change of speeds.' Sounds like the old boy is with quite a company. As for private life, Mel has given up the one and only of last year for a new one and only. He believes the new Willys is *the* car. Plenty of the boys will be ready to argue that point, I'm afraid. Hope you haven't given up reading this screwy missive because I'm just getting down to some heavy boasting. I decided to change jobs a little while ago and after much painful striving, managed to land two within the space of one week. Since Thanksgiving and my birthday were also crowded into that same week, I felt I had something to be thankful for. I started the new job January 4. It is in the engineering department of Harbison-Walker Refractories Company, and all I have to do is to convince them that I am an engineer. Me, a Course XV man! I'll give it everything for a few years and see what happens. The thing I like about that job is that it is in a field relatively untouched by the educational field. The stuff that engineering department is doing won't even be scratched by engineering schools for at least ten years — and that includes M.I.T. My boss tells me he wants me to make a study of dust control as soon as I become oriented — so watch my smoke! If there is anything Pittsburgh needs it's dust control. You know we Pittsburghers have a special word, 'smog,' indicating a combination of smoke and fog. Anyone who tackles that problem successfully may not make a raft of money but surely will have accomplished one of the outstanding achievements of our day."

Again Don Gutleben wrote to me while traveling on a train. This time the letter was mailed from Oakland, Calif. Here's the latest about Don: "About the middle of September I started working for the Sprekel's Sugar Company in Salinas, Calif. — a lively little burg about 100 miles south of San Francisco. The plant is the largest beet-sugar factory in the world and during our recent campaign, from July until December, broke all records by turning out nearly 3,000,000 bags of sugar from 650,000 tons of beets. As a by-product, one million bags of pulp for poultry feed were produced and sold at a buck and a quarter per bag! During the campaign I kept plenty busy learning about the process and methods, helping to run tests on various equipment, and experimenting on a new method of determining sugar color by fluorescence. Now that the actual compaign is over, there will be plenty of engineering work to be done before next July rolls around and sugar again pours forth. Appropriations have already been approved for many new layouts and installations, so there should be some interesting work ahead. The company is also starting work on the construction of a new beet-sugar plant near Sacramento.

"I'm living in half of a two-room bungalow and eat at a near-by boarding house. One fellow just quit there because he gained 20 pounds in one month. I haven't a bay window yet, but give me time! During the campaign, I worked seven days a week, so there was not much time for social activities, but now I'm on the five-day schedule, so I'll be able to play a little golf or tennis, or run up to San Francisco on week-ends. My 1937 Ford comes in very handy on such excursions. The plant closed for a couple of weeks at Christmas, so I hopped the train for Philly. While there I saw Ted Pomeroy, who is working for the American Sugar Company at their Philly plant. I also had a letter from Hewy King, who is now night superintendent of his company's plants in New Brunswick, N. J. He reports favorable progress at the New Jersey College for Women, also located there. However, this progress was somewhat slowed down when he decided to grow a mustache, and the pesky thing turned out to be bright red! This alarming situation has now been remedied. I had a few minutes' chat with Dave Dale when he stopped en route from Boston to Washington. He is working for an instrument company near Boston and frequently gets back to Tech."

The final letter is from our Assistant Secretary, Dick Lawrence. Dick quoted the following from a letter by Bart Chapman: "To begin with, Ken Finlayson and Walt Marshall are keeping company in the upper regions of Manhattan. Each day they straphang an hour and a half to Jersey City where they jiggle test tubes for a petroleum refining equipment concern with Kellogg in the name somewhere. Ken spread Bill Cross and myself to a masterful repast a bit back. Bill was doing something in the line of merchandising gloves in the city then. Whether it amounted to professional holding hands I don't know. He intimated there was something else in the wind, so just what he is doing now, I'm not sure. Had an interesting letter from Art King a while ago. Marcus may not be a frequent correspondent, but he's thorough when and if. It appears he's been doing work in line with his thesis in accounting. He claims to have reorganized the depreciation plan for the Mengel Wood Products Company in Louisville, Ky., and is now wrangling with the tax problem. There is a job that Franklin and his cohorts aren't making any simpler. In line with a crack at Art made by a sweet young acquaintance of his in Gloucester, his home port, King still seems to be maintaining his reputation as a snob. So far no charming Kentucky belle has announcedly prevailed, but knowing Art as I do, I'll bet he has not failed to give more than one a chance. Week-ended in Boston with George Ropes and Asa Jewell, both of '33, and Wally Mathesius '36. In the course of events we encountered Allen Taylor, also of '36. As for myself, I'm still doing my bit for the Remington Arms at Bridgeport, Conn. Contrary to possible conjectures, the Spics are potshotting each other with inferior non-Remington bullets. It looks as though I'll be sojourning for some months at our plants in Cincinnati, Ohio, Ilion, N. Y., and Meriden, Conn., more or less soon. I only hope they don't ship me off to interfere with skiing." Dick also put in a word of his own as follows: "I might add that I had the honor of keeping Wes Loomis well supplied with delicious eggnogs on the afternoon of January 1 while he stood by to do a bit of handshaking. According to all information available, his days of freedom are to end some time in March."

This ends the news for this month — rather a meager amount I'd say. It's time for you fellows to write to me. By way of repeating last month's statement, I've become another of those misguided respectable Tech lads who has succumbed to the mysterious attractive power of Harvard. See some of you in Boston. — ROBERT J. GRANBERG *General Secretary*, Hamilton D-32, Soldiers Field, Boston, Mass. RICHARD LAWRENCE, *Assistant Secretary*, 111 Waban Hill Road North, Chestnut Hill, Mass.

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With few letters and no inspiration, it becomes a task to try to whip together a column of notes about the Class. However, in the absence of definite information, I've managed to gather a few rumors which I pass along to all the brethren to accept if they see fit. If they don't believe them, that's all right with me, and if anyone finds some startling fact about himself here revealed, I guess he'll have to write me a letter to set matters straight.

First, there is the usual crop of engagements and marriages. A newspaper clipping tells of the marriage of Bill Ireland to Miss Ruth A. Simkins of Melrose. After leaving Technology, Bill attended the Lowell Textile Institute. He is now employed by a large textile company in Minetto, N. Y. — From Brent Lowe comes the news that Bill Shewbridge is now engaged. Meanwhile Brent is still searching for the right girl or any girl. He comes up to Boston frequently, however. — On the evening of January 23, the long anticipated wedding of Bob

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Worden occurred. Bob's friends will recall that the lady was Miss Annette Field of Wellesley College and Cambridge. Bob is working for the Campbell Soup Company. — Another of those Course X boys to start on the road to marital bliss is Walter Squires, Jr., whose engagement was recently announced.

Finally, I can't forget Dick Odiorne, who has been complaining that I haven't told of his engagement to Miss Louise Harris of Yellow Springs, Ohio. With Dick working for Sutherland-Abbott, an advertising agency in Boston, and his girl away out West, he sees her about once every three months. However, he is standing up under the strain and looking forward to a year from June when he hopes to hear the wedding bells sound.

Here at Technology the grand battle for jobs has already begun. Among those who have been fortunate enough to land a position are Vernon Osgood, Don Kenny, and Charlie Holman, who will travel down to Wilmington, Del., next June to help the DuPonts solve some of their chemical engineering problems. Their work will be in development for the ammonia division, mostly with resins. What resins have to do with ammonia is beyond me, but I suppose the chemists know what they're doing. I managed to pick a job with the Linde Air Products Company, so next July 1 will find me in Buffalo in the laboratory, keeping Jim Patterson and Shorty Hubbard company.

By way of Fred Carten and Bob Sherman, we find that Harry Donaldson, Jr., now has a job with some chemical company in Elizabeth, N. J. Harry's letter didn't state the name of the company, but he gave plenty of details on the analysis of naphthenic acid and its compounds, which is the work on which he is engaged. Apparently his company manufactures salts of this acid, and it is Harry's duty to test for the concentration of the salt. If he makes an error of three per cent in one of his determinations, the company will lose $75; I take it he has to be precise. Harry is living at 154 Rahway Street, Elizabeth, N. J.

Our first letter from a member of Course IV came all the way from Naples, Italy, where we find Edwin B. Worthen, Jr. Since receiving his bachelor in architecture last June, he has been touring about Europe with the intention of returning to the States (Boston) in the spring.

Course I. While attending a meeting of the designers' section of the Boston Society of Civil Engineers recently, I found Frank Lessard in the audience. He is now working for the Bethlehem Steel Company, detailing and designing reinforced concrete. Since the meeting was being addressed by a member of that company, Frank was on hand to uphold the standard of Bethlehem. After working himself out of a job at Hersum's, Lessard immediately found another with the United States Engineers Office in Baltimore. He didn't like this work, however, so he quit and came back to Boston to his present job. According to Frank, there are plenty of jobs waiting for the civils, but I doubt that that will serve to cheer up any of the boys who may yet be unemployed. I am told that Dan Burns is still looking for the job he wants (whatever that might be), and meanwhile, he is refusing jobs daily (almost). Frank also offered the news that Dobber Dobrochowski is working for the American Electric Signal Company of Rochester, designing circuits. His soil mechanics must be doing him a lot of good in that job!

Elliott Robinson has finally managed to crash into the teaching game. He quit his job at the Brockton Firestone Service Station to take the Massachusetts Civil Service Examinations for civil engineers, but immediately set about substituting as a teacher in the Brockton High School. He has been teaching algebra and geometry, and — of all things — agriculture. With this experience, he hopes to be able to land a permanent teaching job. — Frank Berman was at school recently to report that he was in the between stage, meaning he was looking for another job. The government has been closing down some of its jobs, with the result that the older men were transferred to his job of inspector aboard the hydraulic dredge working in the Mystic River, and Frank is again looking. He objected to my announcement in these columns that he was reading galley proofs on Professor Spofford's ('93) new book. Frank was not correcting typographical errors but was checking the solutions of the illustrative problems. Berman and Norm White have been riding together with the cavalry in the Boston Armory. We have been told a little tale to the effect that Norm White took a nice spill when his horse got too frisky, but to keep peace between the two boys, I'll not repeat it. The final word from Berman relates that he plans to come back to Tech next year for his master's.

Stan Levitt is now in Vicksburg, Miss. He writes: "The Land Office is running a resurvey of the Vicksburg National Military Park, and I'm right on the job. It's interesting work, rerunning the mistakes of the original surveyors. Thirty years from now some other survey will probably criticize my work and wonder what I was getting at. (Just the way of the profession.) Unlike probably any other city in the United States, Vicksburg has a preponderance of employed engineers. It is my guess that probably every other professional man is a member of our ilk. The Mississippi River Commission, the Corps of Engineers, the Park and River Study Lab provide many a well-filled pay envelope. (*Vive* Uncle Sam!) Came face to face with Bill Wells, one of the silent members of our sanitary class, at a ball here. When I asked him what he was doing here in Vicksburg, he gave me the very surprising answer that he lives here. Wells works for the River Commission. I suppose you already know that his engagement to a Cambridge miss was announced a few weeks ago. The siege of Vicksburg is a myth. The city is still in the hands of the Confederacy. There are few Yankees around here. Regards to the fellows."

Course II. In mine hour of need, good old Jim Patterson of Buffalo came through as follows: Two events of interest to the gang in Course II took place in December. The first was the marriage of Paul H. Richardson to Miss Virginia Lois Marshall of Newton, Mass., on December 26, and the second was the marriage of Leon Simons to Miss Netty Rothenberg of New York City, December 27. I know all the fellows join me in congratulating Paul and Leo. Since graduation, Leo has been employed by the Master Wire Die Corporation in New York. A part of his recent letter reads: ". . . As for myself, I've been making out very well. Luckily, our business has been booming and I got a few breaks along with it. I was working in the shop and also on the road selling. I developed some good accounts and now, on the salary and commissions, I'm able to get married. Netty and I are taking the fatal step this Sunday evening (December 27) at the Hotel St. Moritz. Then after a honeymoon of a week, we'll settle down in our own apartment. . . . I haven't heard from Art yet and when you write him, tell him that I got married *after* four months after graduation."

The mystery of the whereabouts of Cesar Calderon was cleared up when a letter came from him a few weeks ago: "After I returned home (Puerto Rico) soon after graduation, I started working with the foundry concern. I stayed with them for about three months doing design work. The experience was most profitable because once they assign you to a job, you first design it and then keep in close contact with it as it goes from the foundry, machine shop, and assembly department. You see, they don't work on a production basis because this big sugar-mill machinery has to be specially designed for each mill. As it is now, they are exporting sugar-mill equipment to South America. Early in October, I sailed over to start my training on the good old Diesels and other Fairbanks Morse products. It was then that your letter mailed October 17 reached Puerto Rico while I was well on my way to this city of Beloit, Wis. My folks sent it to me up here and I got it about a month ago. Going back to the story of my doings, we find the hero at the Fairbanks Morse works ready to commence to begin to get going. The tentative schedule for my training is as follows: three months at the erection floor and three other periods of the same length of time at the test floor, other Fairbanks Morse products, and service field, respectively, making a total of a year." It seems a pity to have to withhold the rest of his letter, but Beloit, Wis. and Buffalo, N. Y., are not sufficiently far apart to tempt me to risk my neck.

Winthrop Scott worked for the Godfrey Manufacturing Corporation of New Brunswick, N. J., until the end of October when he transferred to the Ranger Engineering Corporation in Farmingdale, N. Y., both of them being aircraft concerns. Scotty writes about his present job: "The work here is drafting, but I also assist in the testing department, where they occasionally run tests on ma-

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terials for the Seversky and Grumman aircraft plants, which are close to the Ranger plant. . . . The town of Farmingdale is in the wilds of Long Island and consists of two streets, Main and Conklin, a traffic light at the junction of these, a railroad station which is a gem of nondescript architecture and attracts about three trains a day, a post office, a movie theater, two banks (both at the main intersection), a few assorted stores, and some restaurants. In spite of all this, I find it a reasonably pleasant place to live during the week and not particularly expensive. I don't plan to spend any weekends here, though, if I can help it, for New York is only 33 miles away and offers some escape for the dormant energy which I acquire during the week."

Johnny Rowan informs me that after considering a number of offers, he finally decided to join the engineering staff of the Montreal East Refinery of the Imperial Oil Company, Ltd. He has been working since the middle of December. — Bill Hope and Jack Hamilton drove down from Niagara Falls on January 17 and stopped in to see Shorty Hubbard and me. Both Jack and Bill are getting along swell. While Bill was home over Christmas and New Year's, he and Miss Katherine Briggs of Newton Highlands, Mass., announced their engagement. Although he was registered in Course IX, Bill took a number of courses that brought him in contact with Course II men, and I am sure that they will be as glad as I am to hear this bit of news about him.

Courses III and XII. Stan Johnson, 718 South Linden Avenue, Pittsburgh, Pa., has assumed the duties of secretary for this Course. He writes: "As you know, I spent the summer in Sweden, Norway, and Denmark. . . . Got back early in October and went directly to Pittsburgh, where I'm working as an observer for Carnegie-Illinois (another observation engineer). It is the duty of an observer to tramp around the plant with pencil, paper, and optical pyrometer, and write down important data which may help to make better steel or which may explain rejections. Sometimes I think they make more smoke than steel as we walk around in a continual smog. Pittsburgh is one of the few cities that has smog (smoke mixed with fog). It's a good job and a real opportunity to learn the inside of the steel game. Flew home for Christmas and had a real Swedish fete. (After the way Stan expounded the virtues of the Swedish girls, I wonder what this means.) Coming back, however, the flight was cancelled from Newark to Pittsburgh. All the companies are scared stiff now after all the crack-ups. So long now, until next month; by that time I should have some dope from the boys." — Word has sifted through to the Institute that A. P. Hornor, Jr., who has been working at Bingham Canyon, Utah, for the U. S. Smelting, Refining, and Mining Company, has made a three-year contract to work in Bolivia, South America. He sailed from New York on December 11 to become a junior geologist for the Cia Minera Unificada del Cerro de Potosi, in Potosi, Bolivia.

Course VI-A. Mart Gilman managed to dash off a few words about the electricals. He says: "News is pretty scarce these days when most of the boys have nothing to do but sweat over their seminar papers and prepare for some of these graduate finals which are supposed to be something terrific (how should I know?). However, by the time you read this, if anybody does, that will all be written into eternity, or at least the graduate ratings. Also by that time some of the others may finish their theses and start looking for jobs. Among these is Norm Willcox, who for some reason is trying to locate near Hartford. Yours truly expects to be another in that group and, if all goes well, he will be a new addition to the staff of the General Radio Company in Cambridge. — Boris Maximoff, having only his thesis to wind up, is working until June as a research assistant under Professor DeForest '11. Bill Saylor working in the Technical Electrical Measurements Lab has two sections the second term and he claims he is finally understanding some of the measurements material. The poker, or bridge, games are still running strong in the locker rooms in Building 10, with fellows like Lawrence Peterson and Len Wuosmaa trying to get in at least a game a day.

"This is really not much noise for Course VI-A, but we could expand into pages if everyone were like Gordon Brown who complained because no one put his name in The Review. . . ."

Course X. I managed to waylay a letter from Ed Stritter and I quote it for the brethren: "I have done rather well for myself so far. I am working for a Cambridge concern, the Boston Woven Hose and Rubber Company. They employ about 800 people, and the fumes of Lifebuoy and Lux separate it from M.I.T. They do not, as you might at first think, make stockings and garters, but do make what are called mechanical rubber goods — all kinds of hose, belts, jar rings, matting, and the like. I work in the technical department, which is blamed if anything goes wrong out in the plant and receives none of the credit if everything is going along O.K. There is a bunch of M.I.T. graduates — all Course X — working there, and we have one swell time."

Course XVII. Saturday, December 26, saw a queer group of fellows gathering in the main lobby of the Parker House, Boston. It was Course XVII having one of its reunions which, I believe, are destined to become famous. Since I attended as a guest of the group (I invited myself), I can give a first-hand account of the affair. Those who finally congregated after waiting an hour later than the appointed time were Saul Lukofsky, Dick Hickman, Sebby Mazzotta, Norm White, Dick Halloran, Angie Tremaglio, Art Carota, Johnny Viola, and Bob Leventhal. We missed Charlie Betts because he didn't know where the affair was being held; I understand he spent half the evening walking around Boston looking for the gang. After a supper in the Coffee Shop, the group adjourned to the business of chatting together. Naturally, the subject of jobs was taboo, but we did gather that the Tremaglios, with Sebby and Viola to help, are still building superfine post offices. We also found out that Hickman is now living at 605 West Clinch Avenue, Knoxville, Tenn., where some T.V.A.'ers have hired a house together. The group parted with the understanding that they would gather again in June.

It has come to my attention that some of the fellows would rather see less material about each man in the class notes and have more of the Class mentioned. I agree with the second thesis that more members of the Class should be mentioned, but since we are not limited in space, I see no reason for limiting the amount about each fellow. I think those who proposed the reduction did so with the understanding that the reason more fellows were not mentioned was the restrictions of space. However, the real reason is that we have not heard from any others; all those we know about are included. For the sake of all who are curious, then, I am asking for some more letters. Their receipt will bring pleasure to everyone. — ANTON E. HITTL, *General Secretary*, Graduate House, M.I.T., Cambridge, Mass.

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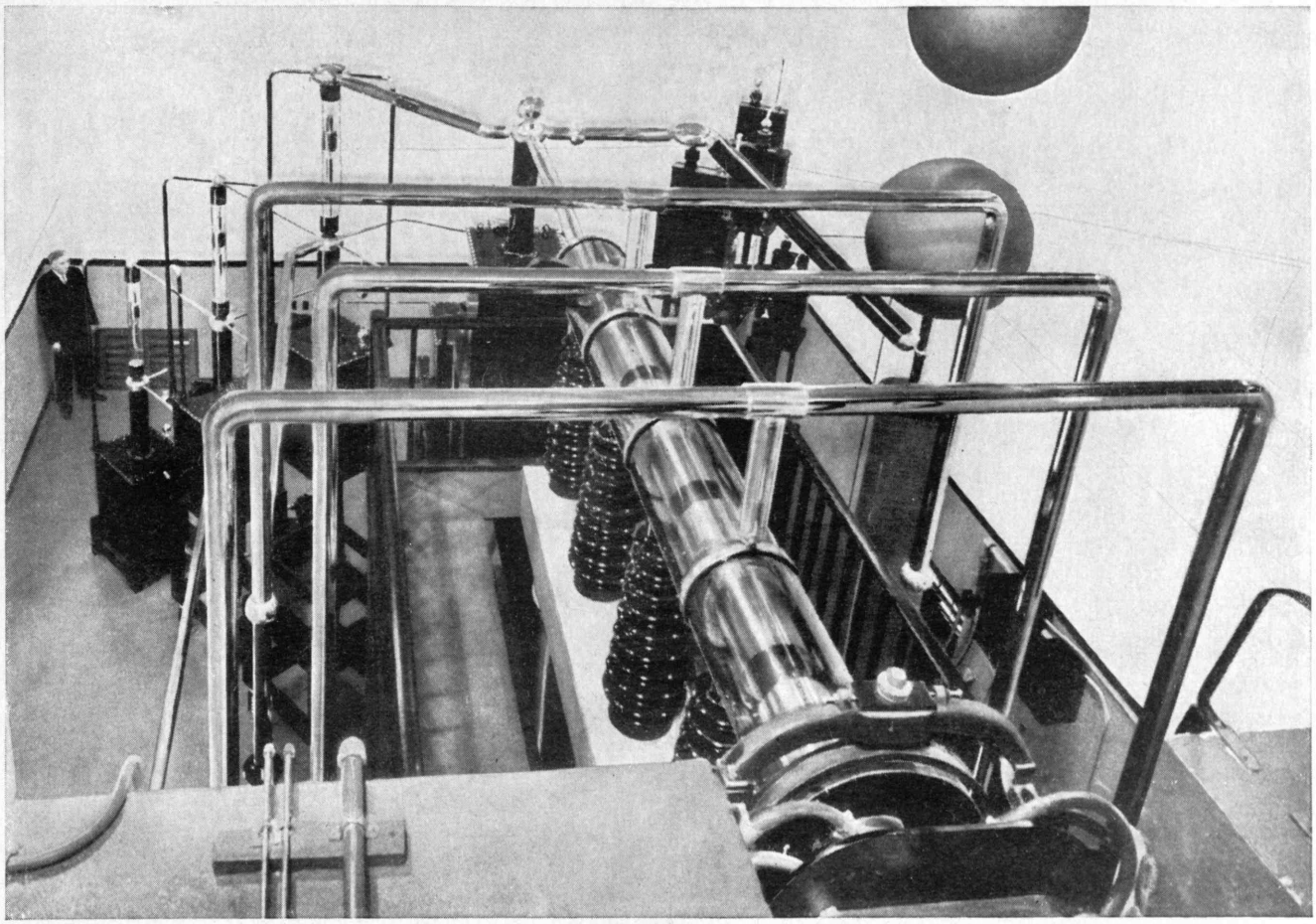

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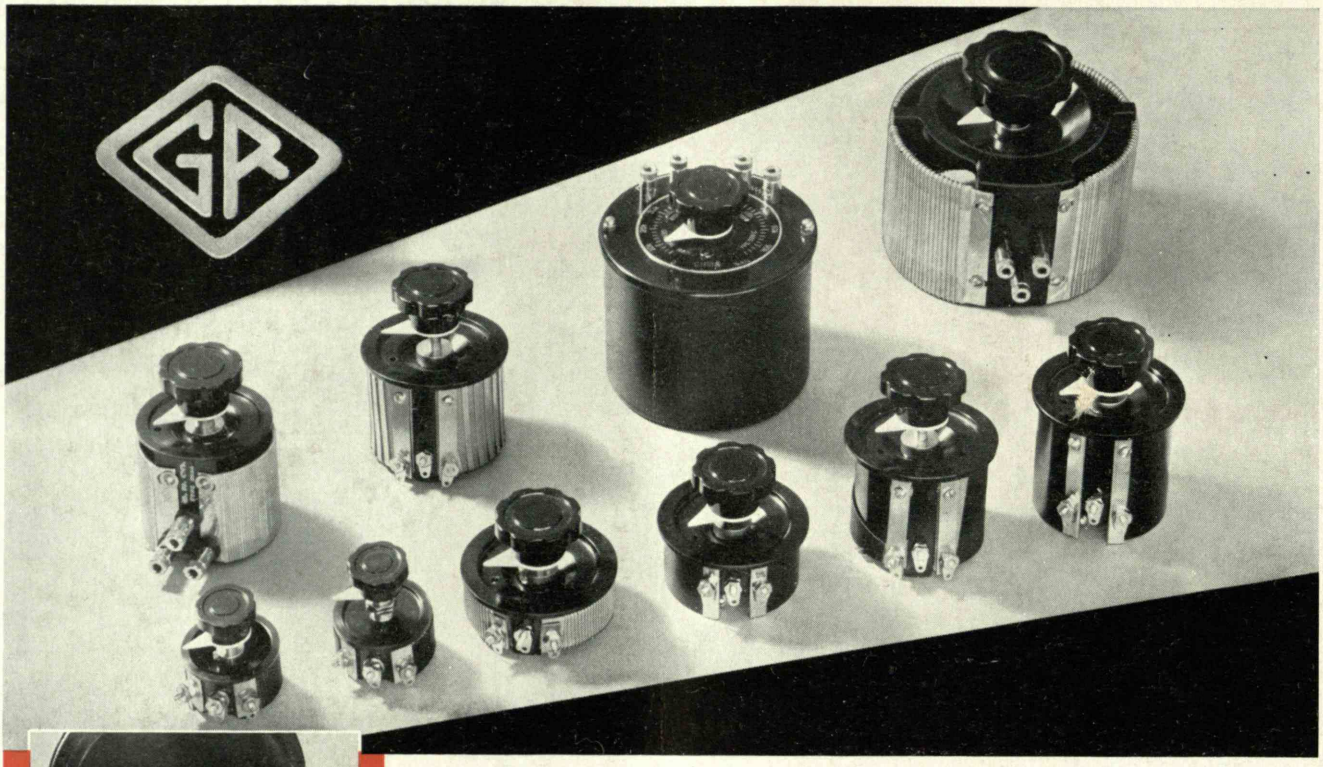

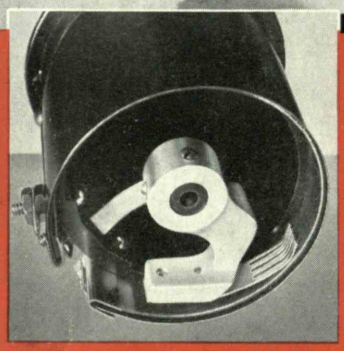

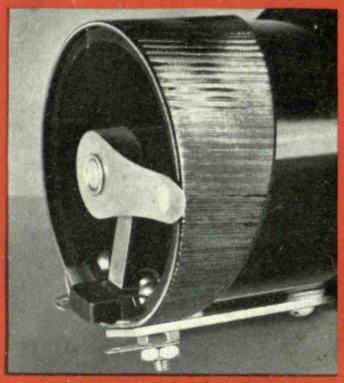

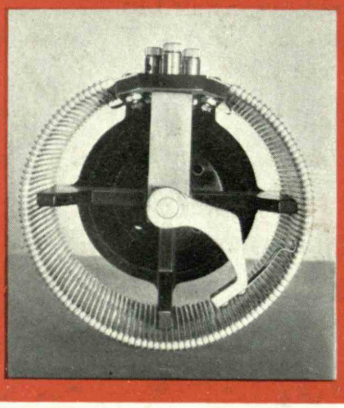

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